DVP-NC650V

RMT-D133A

SERVICE MANUAL

US Model
Canadian Model

Self Diagnosis *Supported model*

SPECIFICATIONS

System

Laser	Semiconductor laser
Signal format system	NTSC

Audio characteristics

Frequency response	DVD (PCM 96 kHz): 2 Hz to 44 kHz (-2 dB ± 2.0 dB at 44 kHz) SACD: 2 Hz to 100 kHz (-3 dB ± 2.0 dB at 50 kHz) CD: 2 Hz to 20 kHz (±0.5 dB)
Signal-to-noise ratio (S/N ratio)	115 dB (DVD VIDEO) (LINE OUT L/R (AUDIO) 1/2 jacks only)
Harmonic distortion	0.003 %
Dynamic range	DVD VIDEO/SACD: 103 dB CD: 99 dB
Wow and flutter	Less than detected value (±0.001% W PEAK)

Outputs

Jack name	Jack type	Output level	Load impedance
DIGITAL OUT (OPTICAL)	Optical output jack	-18 dBm	Wave length 660 nm
DIGITAL OUT (COAXIAL)	Phono jack	0.5 Vp-p	75 ohms terminated
LINE OUT L/R (AUDIO) 1/2	Phono jack	2 Vrms (at 50 kilohms)	Over 10 kilohms
5.1CH OUTPUT	Phono jack	2 Vrms (at 50 kilohms)	Over 10 kilohms
LINE OUT (VIDEO) 1/2	Phono jack	1.0 Vp-p	75 ohms, sync negative
S VIDEO OUT 1/2	4-pin mini DIN	Y: 1.0 Vp-p C: 0.286 Vp-p	75 ohms, sync negative 75 ohms terminated
COMPONENT VIDEO OUT (Y, P_B, P_R)	Phono jack	Y: 1.0 Vp-p P_B, P_R: 0.7 Vp-p	75 ohms, sync negative 75 ohms
AUDIO IN L/R	Phono jack	-	47 kilohms
MEGA CONTROL	Mini jack	-	-
PHONES	Phone jack	12 mW	32 ohms

General

Power requirements	120 V AC, 60 Hz
Power consumption	17 W
Dimensions (approx.)	430 × 108 × 414 mm (17 × 4 3/8 × 16 3/8 in.) (width/height/depth) including projecting parts
Mass (approx.)	5.5 kg (12 lb. 2 oz.)
Operating temperature	5°C to 35°C (41°F to 95°F)
Operating humidity	25% to 80%

Supplied accessories

Check that you have the following items:
- Audio/video cord (pinplug x 3 ←→ pinplug x 3) (1)
- Remote commander (remote) RMT-D133A (1)
- Size AA (R6) batteries (2)
- S VIDEO cord (1)

Specifications and design are subject to change without notice.

ENERGY STAR® is a U.S. registered mark. As an ENERGY STAR® Partner, Sony Corporation has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.

DVD VIDEO™ SUPER AUDIO CD COMPACT disc DIGITAL VIDEO

SACD/DVD PLAYER

SONY®

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the line cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
6. Check the B+ voltage to see it is at the values specified.
7. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

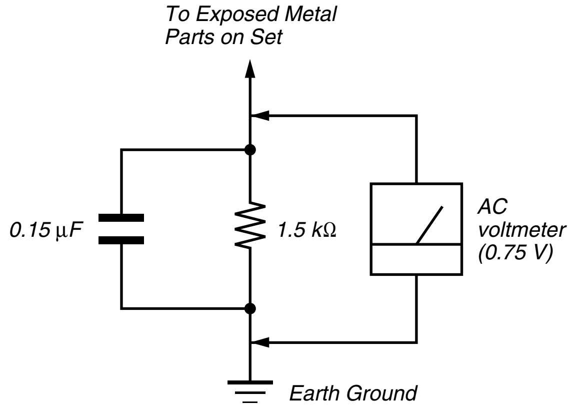


Fig. A. Using an AC voltmeter to check AC leakage.

WARNING!!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION, BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 25 cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.

CAUTION:
The use of optical instrument with this product will increase eye hazard.

CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

TABLE OF CONTENTS

Section *Title* *Page*

Service Note 4

1. GENERAL

Index to Parts and Controls 1-1
Getting Started 1-3
Hookups 1-4
Playing Discs 1-7
Searching for a Scene 1-11
Viewing Information About the Disc 1-12
Sound Adjustments 1-13
Enjoying Movies 1-15
Using Various Additional Functions 1-16
Settings and Adjustments 1-18
Additional Information 1-21

2. DISASSEMBLY

2-1. Upper Case Removal 2-1
2-2. Reinforcement (C) Block Removal 2-1
2-3. Front Panel Section Removal 2-1
2-4. Rear Panel Block Removal 2-1
2-5. AV-60 Board Removal 2-2
2-6. MB-101 Board Removal 2-2
2-7. Table Ass'y Removal 2-2
2-8. CN-143 Board Removal 2-2
2-9. BU Holder Ass'y Removal 2-3
2-10. Optical Pick-up Removal 2-3
2-11. Chassis Ass'y Removal 2-3
2-12. Loading Motor Ass'y (M851) Removal 2-3
2-13. Power Block Removal 2-4
2-14. Internal Views 2-5
2-15. Circuit Boards Location 2-6

3. BLOCK DIAGRAMS

3-1. Overall Block Diagram 3-1
3-2. RF/Servo Block Diagram 3-3
3-3. Signal Process Block Diagram 3-5
3-4. Video Block Diagram 3-7
3-5. System Control Block Diagram 3-9
3-6. Audio (1) Block Diagram 3-11
3-7. Audio (2) Block Diagram 3-13
3-8. Interface Control Block Diagram 3-15
3-9. Power (1) Block Diagram 3-17
3-10. Power (2) Block Diagram 3-19

4. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. Frame Schematic Diagram 4-3
FRAME (1) 4-3
FRAME (2) 4-5
4-2. Printed Wiring Boards and Schematic Diagrams 4-7
MB-101 Printed Wiring Board 4-7
MB-101 (RF AMP, SERVO) Schematic Diagram 4-11
MB-101 (ARP, SERVO DSP) Schematic Diagram 4-13
MB-101 (AV DECODER) Schematic Diagram 4-15
MB-101 (BNR) Schematic Diagram 4-17
MB-101 (DRIVE) Schematic Diagram 4-19
MB-101 (SYSTEM CONTROL) Schematic Diagram 4-21
MB-101 (CLOCK GENERATOR) Schematic Diagram 4-23
MB-101 (FLASH MEMORY, OTP) Schematic Diagram 4-25
MB-101 (AUDIO DSP) Schematic Diagram 4-27
MB-101 (2ch/6ch DAC) Schematic Diagram 4-29
MB-101 (H3GA) Schematic Diagram 4-31
MB-101 (SACO DECODER) Schematic Diagram 4-33
MB-101 (DSD DSP) Schematic Diagram 4-35
AV-60 Printed Wiring Board 4-37
AV-60 (VIDEO BUFFER) Schematic Diagram 4-39
AV-60 (MUTE) Schematic Diagram 4-41
AV-60 (AUDIO AMP) Schematic Diagram 4-43
FR-180 (FUNCTION SWITCH) Printed Wiring Board and Schematic Diagram 4-45
IF-85 Printed Wiring Board 4-47
IF-85 Schematic Diagram 4-49
FL-124, SW-356, HP-133 Printed Wiring Boards 4-51
FL-124 (FUNCTION SWITCH),
SW-356 (FUNCTION SWITCH),
HP-133 (HEADPHONE) Schematic Diagrams 4-53
CN-143, LM-64 Printed Wiring Boards 4-55
CN-143 (CONNECTION), LM-64 (LOADING MOTOR) Schematic Diagram 4-57
SE-123, TM-125 Printed Wiring Board 4-59
SE-123 (SENSOR), TM-125 (TURNTABLE MOTOR) Schematic Diagram 4-61
MPN4801 Printed Wiring Board 4-63
MPN4801 Schematic Diagram 4-65

5. IC PIN FUNCTION DESCRIPTION

5-1. System Control Pin Function (MB-101 Board IC104) 5-1

6. TEST MODE

6-1. General Description 6-1
6-2. Starting Test Mode 6-1
6-3. Syscon Diagnosis 6-1
6-4. Drive Auto Adjustment 6-5
6-5. Drive Manual Operation 6-7
6-6. Mecha Aging 6-10
6-7. Emergency History 6-10
6-8. Version Information 6-11
6-9. Video Level Adjustment 6-11
6-10. IF CON Self Diagnostic Function 6-11
6-11. Troubleshooting 6-18

7. ELECTRICAL ADJUSTMENT

7-1. Power Supply Adjustment 7-1
  1. Power Supply Check (MPN4801 Board) 7-1
  2. +11 V Adjustment 7-1
  3. +5 V Adjustment 7-1
  4. –11 V Adjustment 7-1
7-2. Adjustment of Video System 7-2
  1. Video Level Adjustment (MB-101 Board) 7-2
  2. Checking S Video Output S-Y 7-2
  3. Checking S Video Output S-C 7-2
  4. Checking Component Video Output Y 7-2
  5. Checking Component Video Output B-Y 7-3
  6. Checking Component Video Output R-Y 7-3
7-3. Adjustment Related Parts Arrangement 7-4

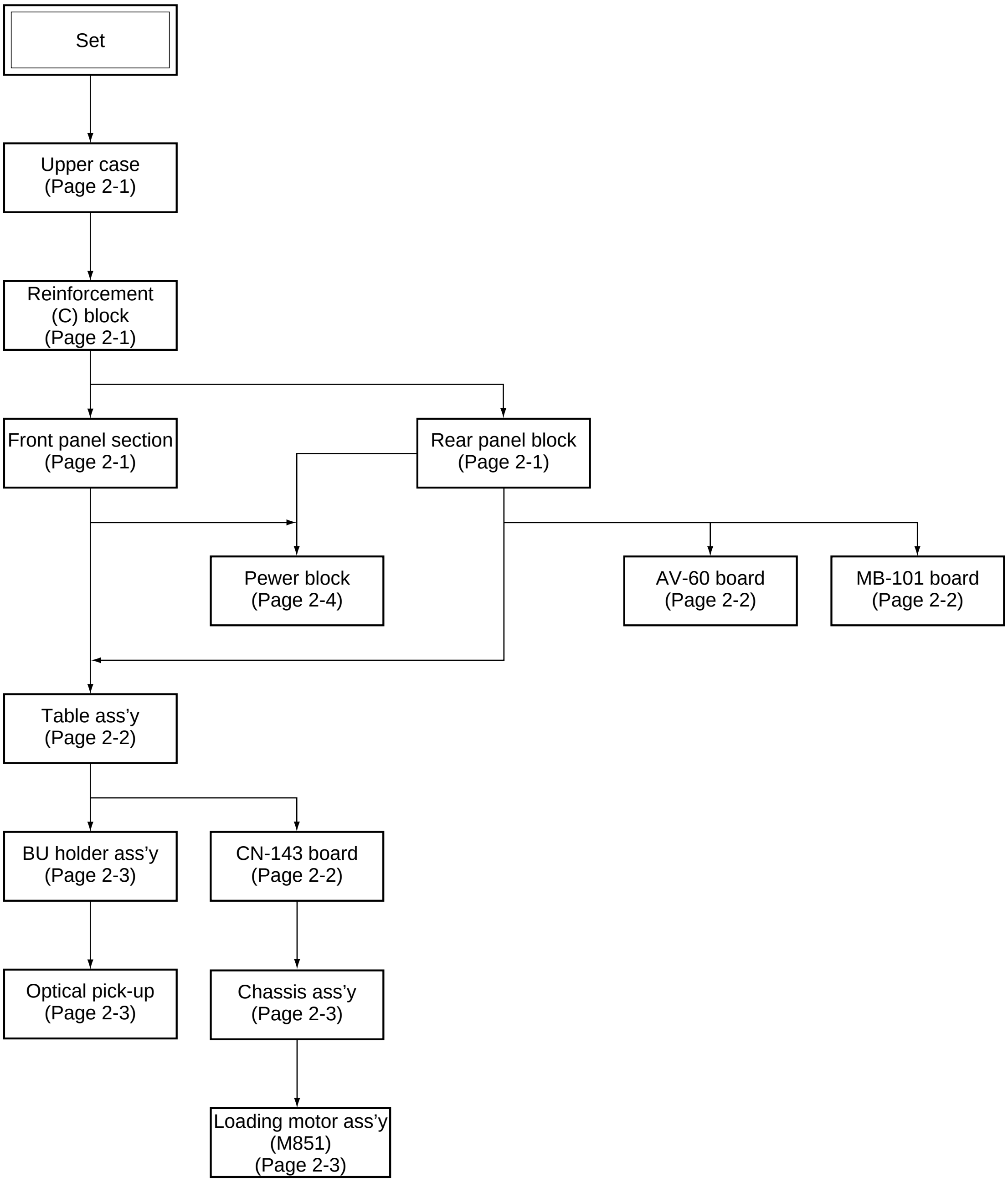
8. REPAIR PARTS LIST

8-1. Exploded Views 8-1
  8-1-1. Main Assembly 8-1
  8-1-2. Front Panel Assembly 8-3
  8-1-3. Table Assembly 8-4
  8-1-4. Chassis Assembly 8-5
8-2. Electrical Parts List 8-6

SERVICE NOTE

1. DISASSEMBLY

- This set can be disassembled in the order shown below.


Set
Upper case (Page 2-1)
Reinforcement (C) block (Page 2-1)
Front panel section (Page 2-1)
Rear panel block (Page 2-1)
Pewer block (Page 2-4)
AV-60 board (Page 2-2)
MB-101 board (Page 2-2)
Table ass'y (Page 2-2)
BU holder ass'y (Page 2-3)
CN-143 board (Page 2-2)
Optical pick-up (Page 2-3)
Chassis ass'y (Page 2-3)
Loading motor ass'y (M851) (Page 2-3)

2. NOTE ON REMOVE THE UPPER CASE

1) Remove seven tapping screws. (See Fig. 1)
2) Open the side of case. (See Fig. 1)
3) Remove the upper case as lift in the direction of arrow.

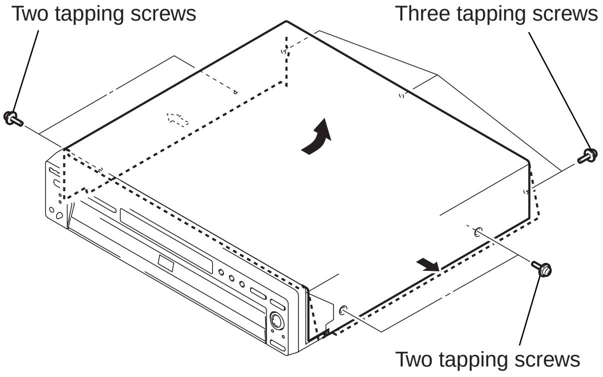

Two tapping screws
Three tapping screws
Two tapping screws

Fig. 1

3. DISC REMOVAL PROCEDURE

1) Insert a flat-blade screwdriver into a hole at the bottom, and rotare the cam gear in the direction of arrow Ⓐ. (See Fig. 2)

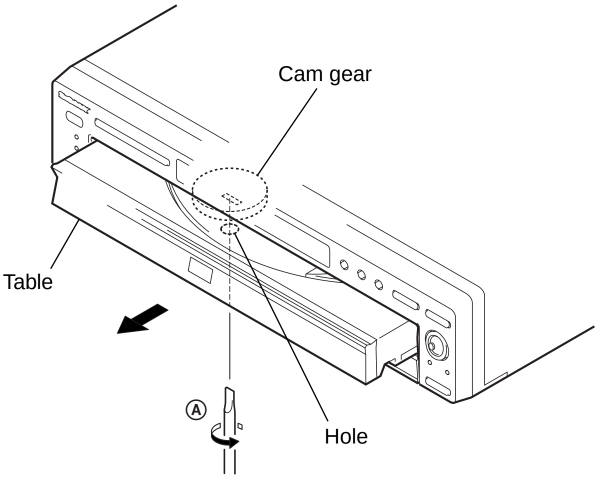

Cam gear
Table
Ⓐ
Hole

Fig. 2

4. NOTE ON MOUNTING GEARS

1) Mount the gear (U/D). (See Fig. 3.)
2) Rotate the gear (U/D) in the direction of arrow. (down position) (See Fig. 3.)

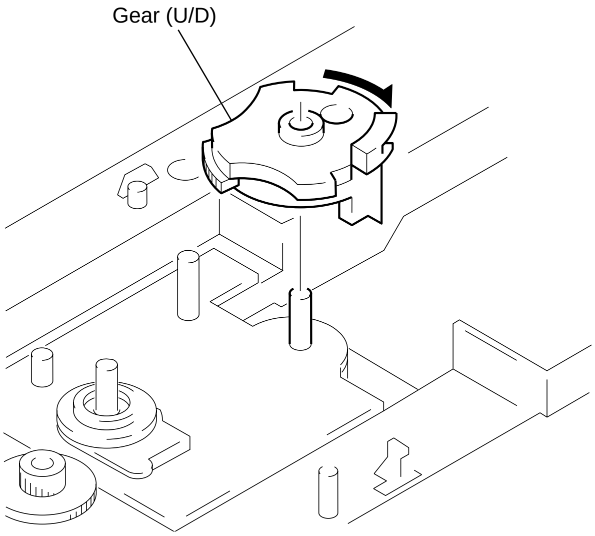


Fig. 3

3) Align triangle marks of the rotary encoder. (See Fig. 4.)
4) Escape the set lever. (See Fig. 4.)
5) Connect the boss of the gear (main) with the groove of the rotary encoder and mount the gear (main). (See Fig. 4.)

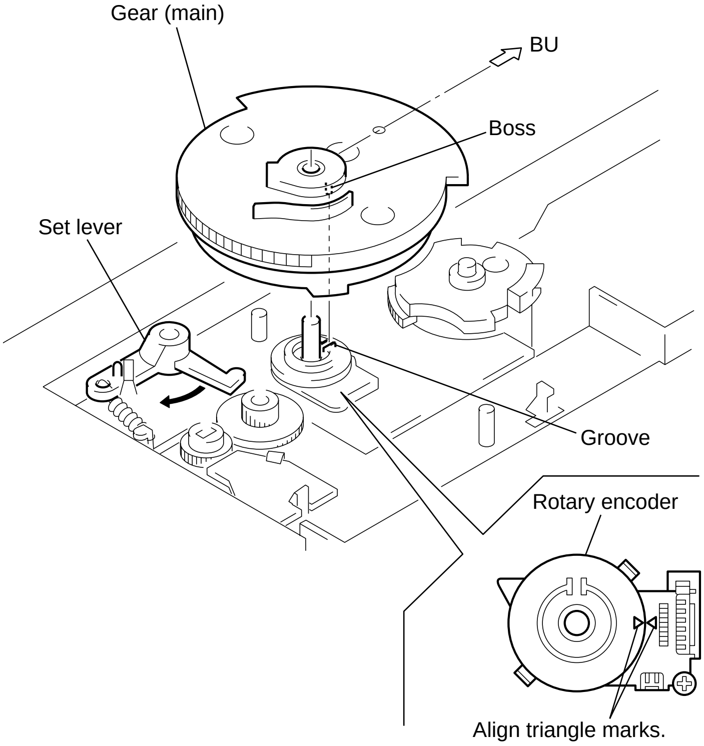

Gear (main)
BU
Boss
Set lever
Groove
Rotary encoder
Align triangle marks.

Fig. 4

6) Mount the lock lever (See Fig. 5.)
7) Mount the spring (lock lever). (See Fig. 5.)

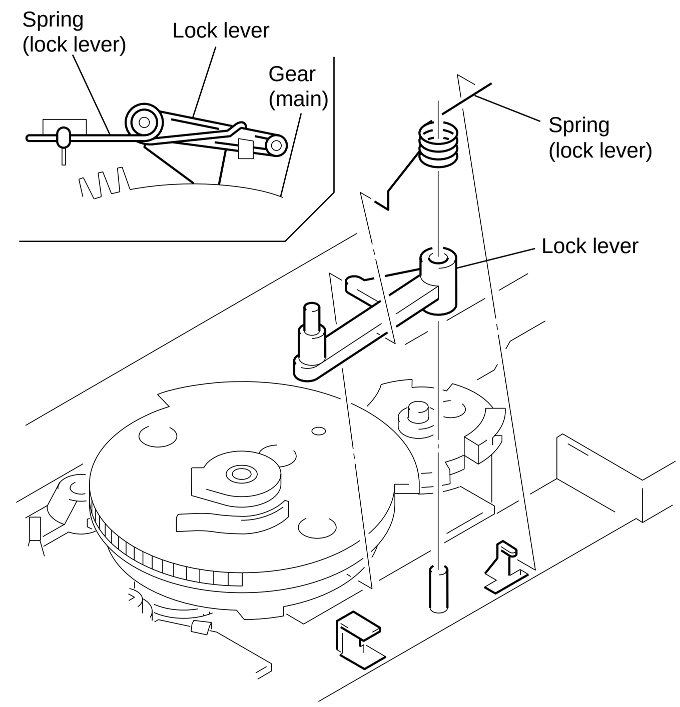

Spring
(lock lever)
Lock lever
Gear
(main)
Spring
(lock lever)
Lock lever

Fig. 5

8) Rotate the gear (main) in the direction of arrow Ⓐ by 90° turn. (Gear (U/D) is up position.) (See Fig. 6.)
9) Mount the Gear (rev). (See Fig. 6.)
10) Fix three stopper washers on the groove of shafts. (See Fig. 6.)

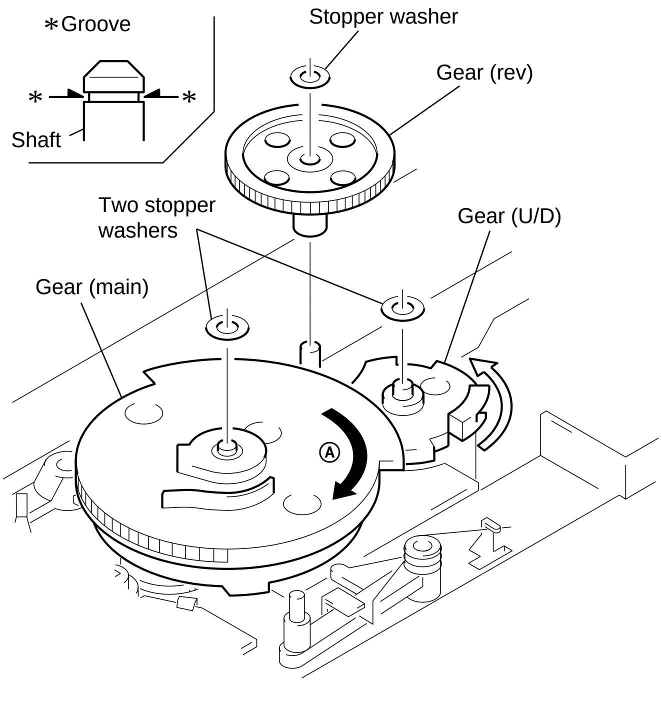

*Groove
*
*
Shaft
Stopper washer
Gear (rev)
Two stopper
washers
Gear (U/D)
Gear (main)
Ⓐ

Fig. 6

5. HOW TO SERVICE MB-101 BOARD

- Use the service jig (J-6090-107-A).

1) Remove the upper case from the set. (Refer to 2-1)
2) Remove the reinforcement (C) block. (Refer to 2-2)
3) Remove the front panel section. (Refer to 2-3)
4) Remove the rear panel block as shown in Fig. 7.

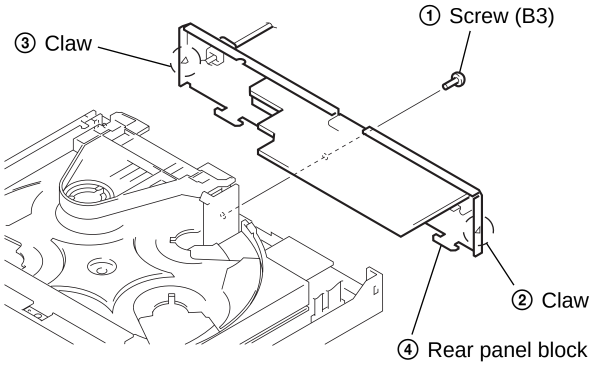

① Screw (B3)
③ Claw
② Claw
④ Rear panel block

Fig. 7

5) Remove the MB-101 board. (Refer to 2-6)
6) Remove two flexible flat cables as shown in Fig. 8.

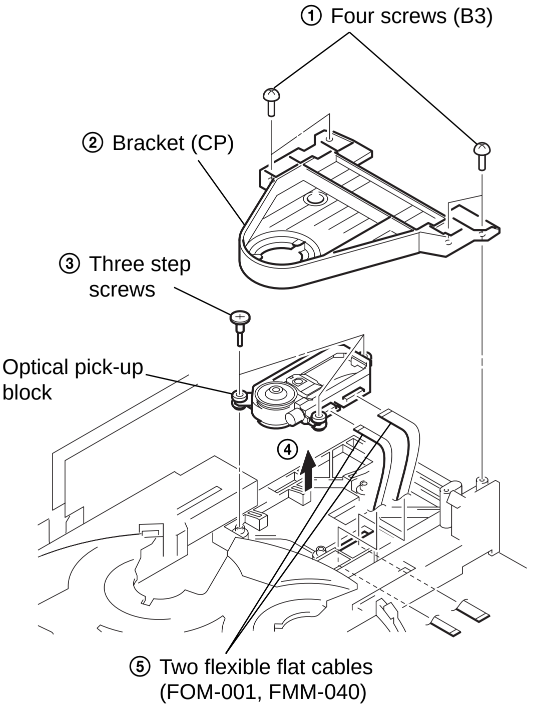

① Four screws (B3)
② Bracket (CP)
③ Three step
screws
Optical pick-up
block
④
⑤ Two flexible flat cables
(FOM-001, FMM-040)

Fig. 8

7) Set two flexible flat cables as shown in Fig. 9.

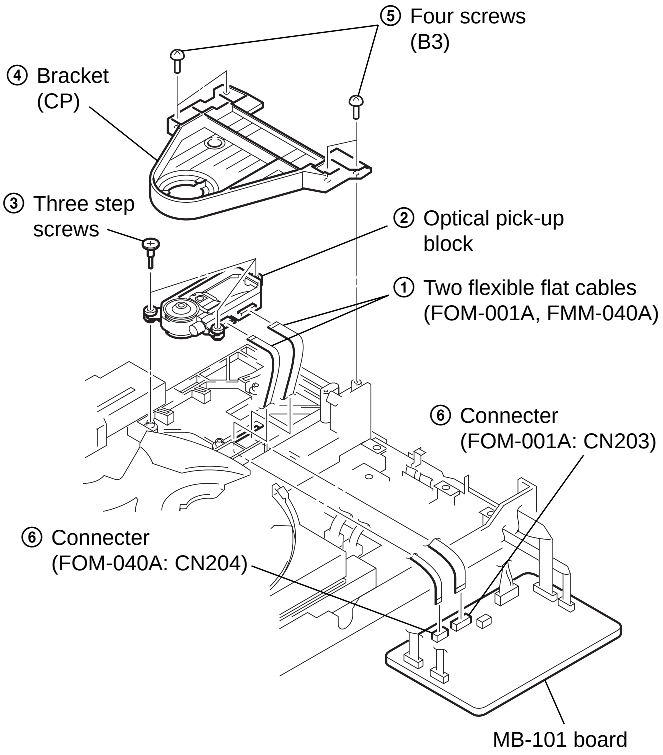

⑤ Four screws (B3)
④ Bracket (CP)
③ Three step screws
② Optical pick-up block
① Two flexible flat cables (FOM-001A, FMM-040A)
⑥ Connecter (FOM-001A: CN203)
⑥ Connecter (FOM-040A: CN204)
MB-101 board

Fig. 9

8) Set the flexible flat cables as shown in Fig. 10.

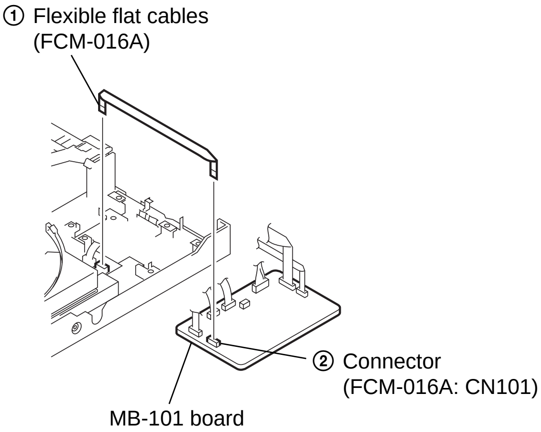

① Flexible flat cables (FCM-016A)
② Connector (FCM-016A: CN101)
MB-101 board

Fig. 10

9) Set the rear panel block as shown in Fig. 11.

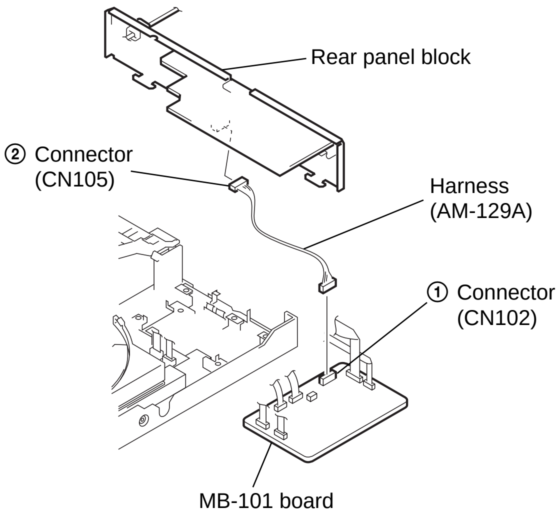

Rear panel block
② Connector (CN105)
Harness (AM-129A)
① Connector (CN102)
MB-101 board

Fig. 11

10) Set the front panel section.
11) Set the MB-101 board as shown in Fig. 12.

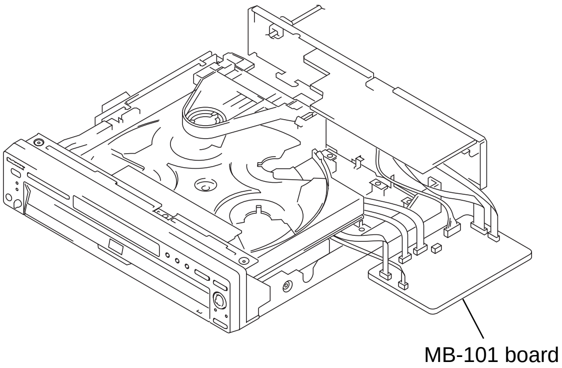
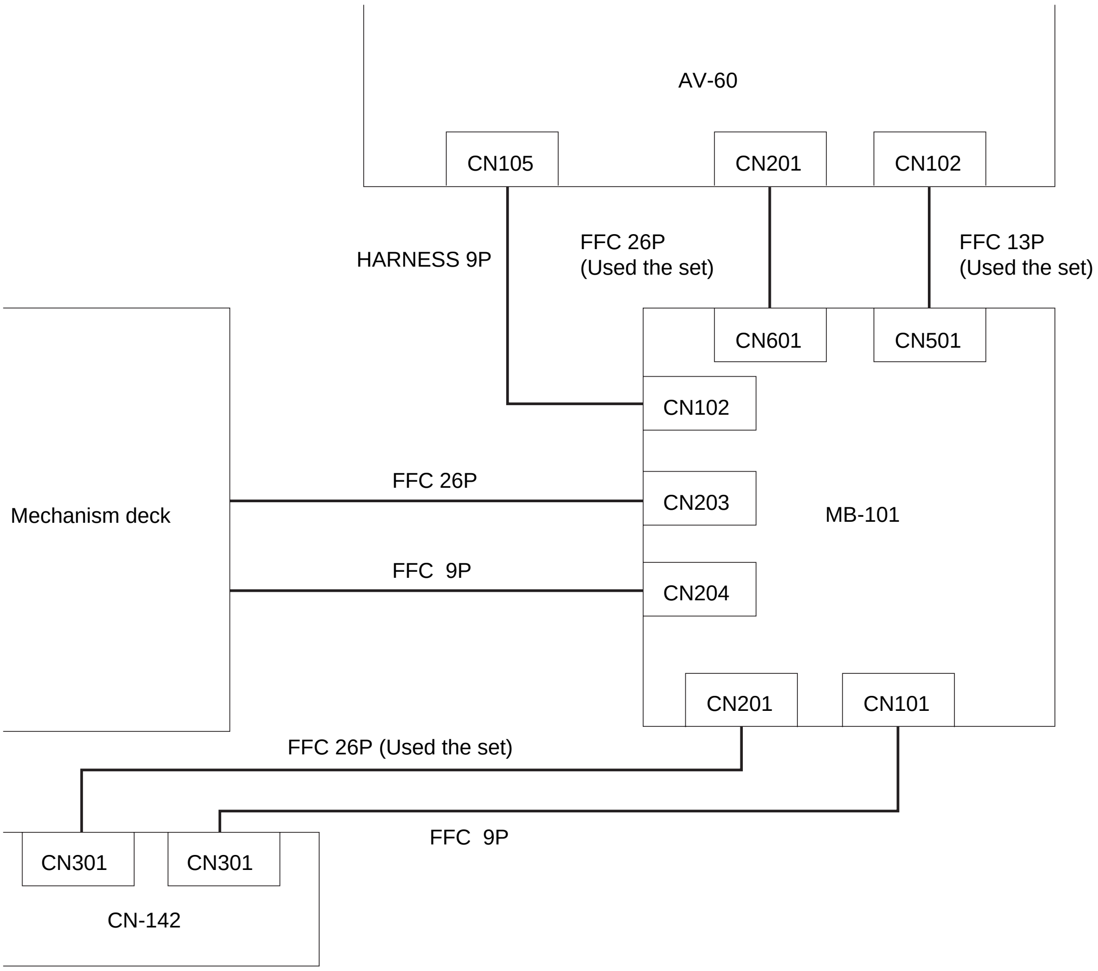

MB-101 board

Fig. 12

6. CONNECTION OF SERVICE JIG


AV-60
CN105
CN201
CN102
HARNESS 9P
FFC 26P
(Used the set)
FFC 13P
(Used the set)
CN601
CN501
CN102
Mechanism deck
FFC 26P
CN203
MB-101
FFC 9P
CN204
CN201
CN101
FFC 26P (Used the set)
FFC 9P
CN301
CN301
CN-142

SECTION 1
GENERAL

This section is extracted from instruction manual (3-070-514-11).

About this Manual

- Instructions in this manual describe the controls on the remote. You can also use the controls on the player if they have the same or similar names as those on the remote.
- The icons used in this manual are described below:

Icon	Meaning
DVD VIDEO	Functions available for DVD VIDEOs or DVD-Rs/DVD-RWs in Video mode
DVD-RW	Functions available for DVD-RWs in VR (Video Recording) mode
VIDEO CD	Functions available for VIDEO CDs or CD-Rs/CD-RWs
SACD	Functions available for Super Audio CDs
CD	Functions available for music CDs or CD-Rs/CD-RWs
💡	More convenient features

* "DVD" may be used as a general term for DVD VIDEOs, DVD-Rs, and DVD-RWS.

This Player Can Play the Following Discs

Format of discs
DVD VIDEO DVD VIDEO
DVD-RW DVD RW
SACD SUPER AUDIO CD
VIDEO CD COMPACT disc DIGITAL VIDEO
Music CD COMPACT disc DIGITAL AUDIO

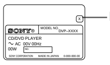
"DVD VIDEO" and "DVD-RW" are trademarks.

Region code

Your player has a region code printed on the back of the unit and only will play DVD VIDEO discs (playback only) labeled with identical region codes.

DVDs labeled ALL will also play on this player.

If you try to play any other DVD, the message "Playback prohibited by area limitations." will appear on the TV screen. Depending on the DVD, no region code indication may be labeled even though playing the DVD is prohibited by area restrictions.


Region code

Example of discs that the player cannot play

The player cannot play the following discs:
- CD-ROMs (PHOTO CDs included)
- All CD-Rs/CD-RWs other than music and VCD format CD-Rs/CD-RWs
- Data part of CD-Extras
- DVD-ROMs
- DVD Audio discs

Also, the player cannot play the following discs:
- A DVD with a different region code (page 93).
- A disc recorded in a color system other than NTSC, such as PAL or SECAM. (This player conforms to the NTSC color system.)
- A disc that has a non-standard shape (e.g., card, heart).
- A disc with paper or stickers on it.
- A disc that has the adhesive of cellophane tape or a sticker still left on it.

Note

Some DVD-Rs, DVD-RWs, CD-Rs or CD-RWs cannot be played on this player due to the recording quality or physical condition of the disc, or the characteristics of the recording device. DVD-RWs in VR mode may also take time to play back due to the recording condition.
Furthermore, the disc will not play if it has not been correctly finalized. For more information, see the operating instructions for the recording device.

Note on playback operations of DVDs and VIDEO CDs

Some playback operations of DVDs and VIDEO CDs may be intentionally set by software producers. Since this player plays DVDs and VIDEO CDs according to the disc contents the software producers designed, some playback features may not be available. Also, refer to the instructions supplied with the DVDs or VIDEO CDs.

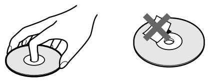
Copyrights

This product incorporates copyright protection technology that is protected by method claims of certain U.S. patents, other intellectual property rights owned by Macrovision Corporation, and other rights owners. Use of this copyright protection technology must be authorized by Macrovision Corporation, and is intended for home and other limited viewing uses only, unless otherwise authorized by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

Notes about the Discs

On handling discs

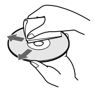
- To keep the disc clean, handle the disc by its edge. Do not touch the surface.



- Do not expose the disc to direct sunlight or heat sources such as hot air ducts, or leave it in a car parked in direct sunlight as the temperature may rise considerably inside the car.
- After playing, store the disc in its case.

On cleaning

- Before playing, clean the disc with a cleaning cloth. Wipe the disc from the center out.

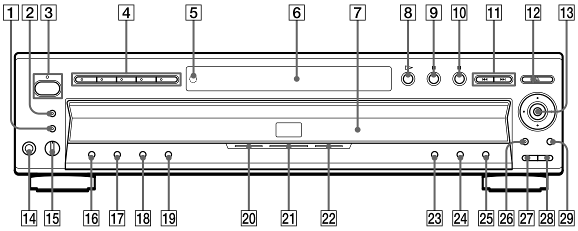


- Do not use solvents such as benzine, thinner, commercially available cleaners, or anti-static spray intended for vinyl LPs.

Index to Parts and Controls

For more information, refer to the pages indicated in parentheses.

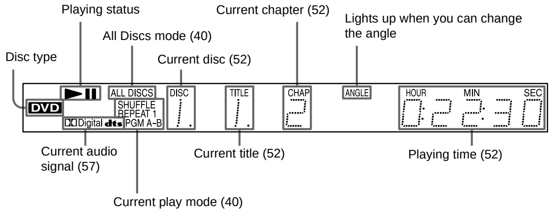
Front Panel (shown with the front door open)


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29

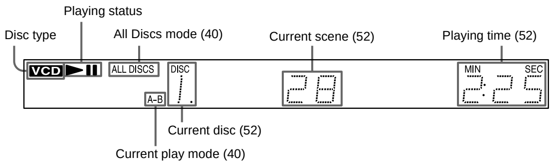
1 BNR (Block Noise Reduction) button/indicator (65)
2 SURROUND button/indicator (58)
3 POWER (power) switch/indicator (33)
4 DISC SELECT (disc select) 1 through 5 buttons (34)
5 ⊡ (remote sensor) (15)
6 Front panel display (9)
7 Disc tray (33)
8 ▷ (play) button (33)
9 ❚❚ (pause) button (34, 72)
10 ■ (stop) button (33)
11 ⏮/⏭ (previous/next) buttons (34)
12 ⏏ (open/close) button (34)
13 ←/↑/↓/→/ENTER (enter) buttons (28)
14 PHONES (phones) jack (33)
15 LEVEL (level) control (33)
16 SHUFFLE (shuffle) button (43)
17 REPEAT (repeat) button (44)
18 ONE/ALL (one/all) button (40)
19 LOAD (load) button (34)
20 SACD indicator
Lights up when the disc is an SACD.
21 MULTI CHANNEL (multi-channel) indicator
Lights up when:
– playing a disc that contains multiple audio signal channels
– the disc is not inserted
22 DVD indicator
Lights up when the disc is a DVD.
23 TOP MENU (top menu) button (37)
24 MENU (menu) button (37)
25 ↶RETURN (return) button (39)
26 MEGA CONTROL (mega control) button/indicator (75)
27 EXCHANGE (exchange) button (35)
28 DISC SKIP (disc skip) button (33)
29 DISPLAY (display) button (12)

Front Panel Display

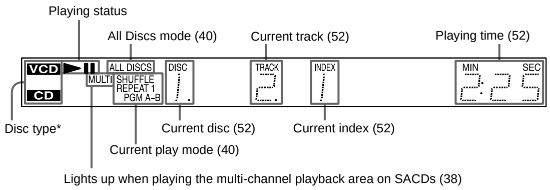
When playing back a DVD VIDEO/DVD-RW


Playing status
Current chapter (52)
Lights up when you can change the angle
All Discs mode (40)
Disc type
Current disc (52)
DVD
ALL DISCS
SHUFFLE
REPEAT 1
PGM A-B
Digital dts
DISC
TITLE
CHAP
ANGLE
HOUR
MIN
SEC
Current audio signal (57)
Current title (52)
Playing time (52)
Current play mode (40)

When playing back a VIDEO CD (PBC)


Playing status
Disc type
All Discs mode (40)
Current scene (52)
Playing time (52)
VCD
ALL DISCS
DISC
A-B
MIN
SEC
Current disc (52)
Current play mode (40)

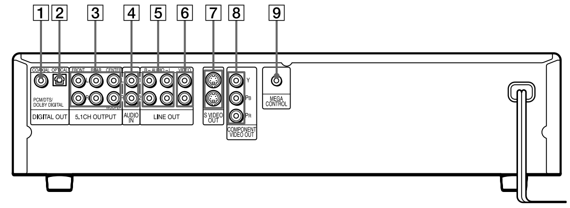
When playing back an SACD, CD or VIDEO CD (without PBC)


Playing status
All Discs mode (40)
Current track (52)
Playing time (52)
VCD
CD
ALL DISCS
MULTI
SHUFFLE
REPEAT 1
PGM A-B
DISC
TRACK
INDEX
MIN
SEC
Disc type*
Current disc (52)
Current index (52)
Current play mode (40)
Lights up when playing the multi-channel playback area on SACDs (38)

* When playing the SACD layer of SACD discs, the disc type is not displayed.

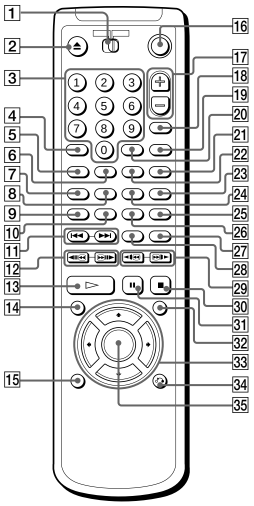
continued ➡

Rear Panel


1
2
3
4
5
6
7
8
9
DIGITAL OUT
5.1CH OUTPUT
AUDIO IN
LINE OUT
S VIDEO OUT
COMPONENT VIDEO OUT
MEGA CONTROL

1 DIGITAL OUT (COAXIAL) (digital out (coaxial)) jack (22, 24, 26)
2 DIGITAL OUT (OPTICAL) (digital out (optical)) jack (22, 24, 26)
3 5.1CH OUTPUT (5.1-channel output) jack (22)
4 AUDIO IN L/R (audio in left/right) jacks (75)
5 LINE OUT L/R (AUDIO) (line out left/right (audio)) 1/2 jacks (16, 21, 24, 26)
6 LINE OUT (VIDEO) (line out (video)) 1/2 jacks (16, 18)
7 S VIDEO OUT (S video out) 1/2 jacks (18)
8 COMPONENT VIDEO OUT (component video out) jacks (18)
9 MEGA CONTROL (mega control) jack (75)

Remote

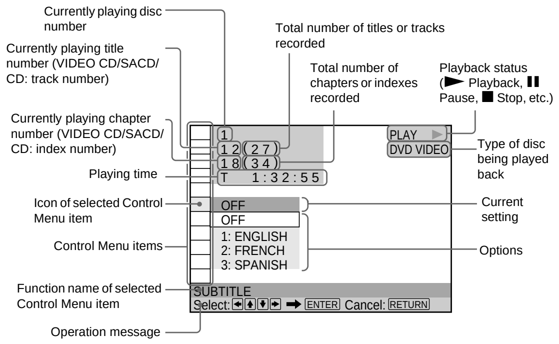

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35

1 TV/DVD switch (73)
2 ⏏ OPEN/CLOSE (open/close) button (33)
3 Number buttons (37)
The number 5 button has a tactile dot.
4 CLEAR (clear) button (41, 43, 44, 45)
5 SACD MULTI/2CH (SACD multi/2-channel) button (38)
6 SACD/CD button (38)
7 AUDIO (audio) button (56)
8 ANGLE (angle) button (63)
9 SHUFFLE (shuffle) button (43)
10 PROGRAM (program) button (41)
11 ⏮/⏭ PREV/NEXT (previous/next) buttons (34)
12 ◀II⏪/⏩II▶ SEARCH/STEP (search/step) buttons (47)
13 ▷ PLAY (play) button (33)
The ▷ button has a tactile dot.
14 TOP MENU (top menu) button (37)
15 DISPLAY (display) button (12)
16 I/⏻ (on/standby) button (33)
17 VOL (volume) +/– buttons (73)
The + button has a tactile dot.
18 TV/VIDEO/BNR (TV/video/BNR) button (65, 73)
19 WIDE MODE (wide mode)/DVE (Digital Video Enhancer) button (67, 73)
20 ENTER (enter) button (28)
21 DISC SKIP (disc skip) button (34)
22 SEARCH MODE (search mode) button (48)
23 TIME/TEXT (time/text) button (52)
24 SUBTITLE (subtitle) button (64)
25 A-B button (45)
26 REPEAT (repeat) button (44)
27 REPLAY (replay) button (34)
28 SURROUND (surround) button (58)
29 ◀I⏪/⏩I▶ SCAN/SLOW buttons (47)
30 ■ STOP (stop) button (34)
31 II PAUSE (pause) button (34)
32 MENU (menu) button (37)
33 ←/↑/↓/→ buttons (28)
34 ↶RETURN (return) button (39)
35 ENTER (enter) button (28)

Guide to the Control Menu Display

Use the Control Menu to select a function that you would like to use. The Control Menu display appears when the DISPLAY button is pressed. For details, please refer to the page in parentheses.

Control Menu


Currently playing disc number
Currently playing title number (VIDEO CD/SACD/CD: track number)
Currently playing chapter number (VIDEO CD/SACD/CD: index number)
Playing time
Icon of selected Control Menu item
Control Menu items
Function name of selected Control Menu item
Operation message
Total number of titles or tracks recorded
Total number of chapters or indexes recorded
Playback status (▶ Playback, II Pause, ■ Stop, etc.)
Type of disc being played back
Current setting
Options
1
1 2 (2 7)
1 8 (3 4)
T 1 : 3 2 : 5 5
PLAY ▶
DVD VIDEO
OFF
OFF
1: ENGLISH
2: FRENCH
3: SPANISH
SUBTITLE
Select: ← ↑ ↓ → ➡ ENTER Cancel: RETURN

List of Control Menu Items

DISC (page 48)	Selects the disc to be played.
TITLE (page 48)/SCENE (page 48)/ TRACK (page 48)	Selects the title, scene, or track to be played.
CHAPTER (page 48)/INDEX (page 48)	Selects the chapter or index to be played.
TRACK (page 48)	Selects the track to be played.
INDEX (page 48)	Selects the index to be played.
TIME/TEXT (page 48)	Checks the elapsed time and the remaining playback time. Input the time code for picture and music searching. Displays the DVD or SACD/CD text.

ORIGINAL/PLAY LIST (page 37)	Selects the type of titles (DVD-RW) to be played, the ORIGINAL one, or an edited PLAY LIST.
AUDIO (page 56)	Changes the audio setting.
MULTI/2CH (page 38)	Selects the playback area on SACDs when available.
SUBTITLE (page 64)	Displays the subtitles. Changes the subtitle language.
ANGLE (page 63)	Changes the angle.
SURROUND (page 58)	Selects the surround functions.
ADVANCED (page 55)	Checks the information (bit rate or layer) on the disc while playing a DVD.
PARENTAL CONTROL (page 68)	Set to prohibit playback on this player.
SETUP (page 77)	QUICK Setup (page 28) Use Quick Setup to choose the desired language for the on-screen display, the aspect ratio of the TV, the audio output, and the appropriate speaker settings. CUSTOM Setup In addition to the Quick Setup setting, you can adjust other various settings. RESET Returns the settings in "SETUP" to the default setting.
ONE/ALL DISCS (page 40)	Selects One Disc or All Discs mode.
PROGRAM (page 41)	Selects the discs, title, chapter, or track to play in the order you want.
SHUFFLE (page 43)	Plays the discs, title, chapter, or track in a random order.
REPEAT (page 44)	Plays the discs, entire disc (all titles/all tracks), or one title/chapter/track repeatedly.
A-B REPEAT (page 45)	Specifies the parts you want to play repeatedly.
BNR (page 65)	Adjusts the picture quality by reducing the "block noise" or mosaic like patterns that appear on your TV screen.
VIDEO EQUALIZER (page 66)	Adjusts the video signal from the player. You can select the picture quality that best suits the program you are watching.
DIGITAL VIDEO ENHANCER (page 67)	Exaggerates the outline of the image to produce a sharper picture.

continued ➡

VIEWER (page 50)	Divides the screen into 9 sub-screens to help you find the scene you want quickly.

💡 Each time you press DISPLAY, the Control Menu display changes as follows:

Control Menu display 1
↓
Control Menu display 2
↓
ADVANCED display (Appears if you select any setting other than “OFF.” See page 55.)
↓
Control Menu display off

💡 The Control Menu icon indicator lights up in green → when you select any item except “OFF” (“SURROUND,” “PROGRAM,” “SHUFFLE,” “REPEAT,” “A-B REPEAT,” “BNR,” “DIGITAL VIDEO ENHANCER” only). The “ANGLE” indicator lights up in green only when the angles can be changed. The “VIDEO EQUALIZER” indicator lights up in green when any setting other than “STANDARD” is selected.

Quick Overview

A quick overview presented in this chapter will give you enough information to start using the player for your enjoyment. To use the surround sound features of this player, refer to “Hookups” on page 18.

Notes

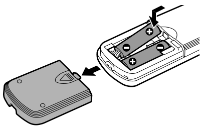
- You cannot connect this player to a TV that does not have a video input jack.
- Be sure to turn off the power of each component before connecting.

Step 1: Unpacking

Check that you have the following items:
- Audio/video cord (pinplug x 3 ←→ pinplug x 3) (1)
- Remote commander (remote) RMT-D133A (1)
- Size AA (R6) batteries (2)
- S VIDEO cord (1)

Step 2: Inserting Batteries into the Remote

You can control the player using the supplied remote. Insert two size AA (R6) batteries by matching the ⊕ and ⊖ ends on the batteries to the markings inside the compartment. When using the remote, point it at the remote sensor ⊠ on the player.



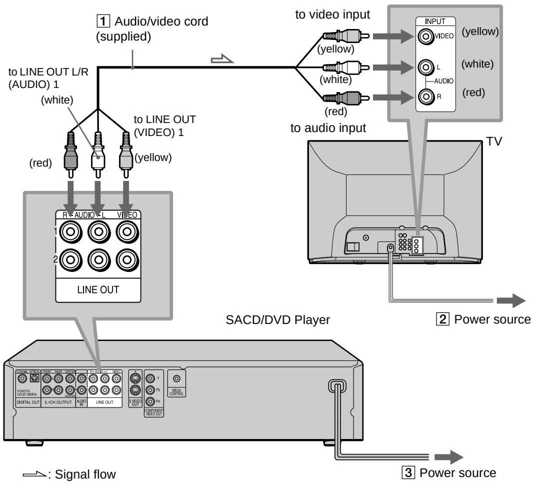
Notes

- Do not leave the remote in an extremely hot or humid place.
- Do not drop any foreign object into the remote casing, particularly when replacing the batteries.
- Do not expose the remote sensor to direct light from the sun or lighting apparatus. Doing so may cause a malfunction.
- If you do not use the remote for an extended period of time, remove the batteries to avoid possible damage from battery leakage and corrosion.

continued ➡

Step 3: TV Hookups

Connect the supplied audio/video cord and power cord in the order (1~3) shown below. Be sure to connect the power cord last.



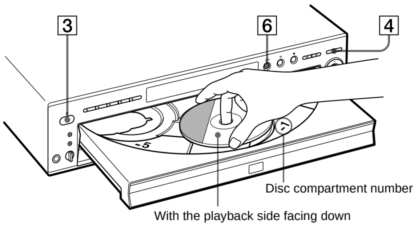
When connecting to a wide screen TV

Depending on the disc, the image may not fit your TV screen.
If you want to change the aspect ratio, please refer to page 79.

Step 4: Playing a Disc

1 **Turn on the TV.**

2 **Switch the input selector on the TV to the player.**



3 **Press POWER on the player.**

4 **Press ≜ on the player to open the disc tray.**

5 **Place the disc on the tray with the playback side facing down.**

6 **Press ▷.**
The disc tray closes and the player begins playing the disc.

After Step 6

Depending on the disc, a menu may be displayed on the TV screen. If so, select the item you want from the menu and play the DVD (page 37) or VIDEO CD disc (page 39).

To stop playing

Press ■.

To take out the disc

Press ≜.

To turn off the player

Press I/⏻ on the remote. The player is set to standby mode and the power indicator lights up in red. Press POWER on the player to turn off completely.

Hooking Up the Player

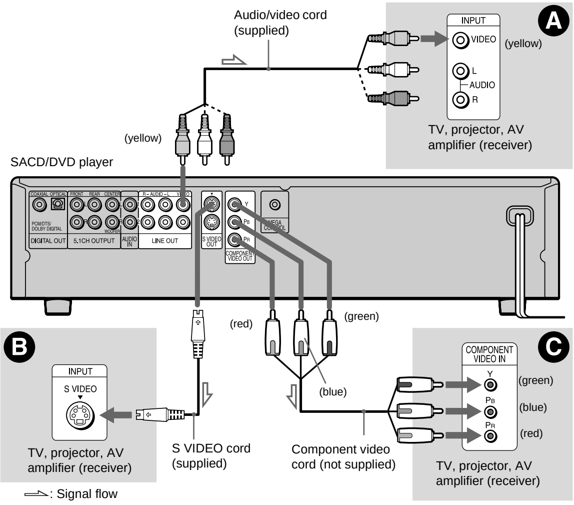
Follow Steps 1 to 4 to hook up and adjust the settings of the player.
Before you start, turn off the power, check that you have all of the supplied accessories, and insert the batteries into the remote (page 15).

Notes

- Plug cords securely to prevent unwanted noise.
- Refer to the instructions supplied with the components to be connected.

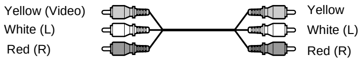
Step 1: Connecting the Video Cords

Connect this player to your TV monitor, projector, or AV amplifier (receiver) using a video cord. Select one of the patterns Ⓐ through Ⓒ, according to the input jack on your TV monitor, projector, or AV amplifier (receiver).


Audio/video cord (supplied)
INPUT
VIDEO
(yellow)
L
AUDIO
R
A
TV, projector, AV amplifier (receiver)
(yellow)
SACD/DVD player
(red)
(green)
B
INPUT
S VIDEO
TV, projector, AV amplifier (receiver)
S VIDEO cord (supplied)
(blue)
Component video cord (not supplied)
C
COMPONENT VIDEO IN
Y
PB
PR
(green)
(blue)
(red)
TV, projector, AV amplifier (receiver)
: Signal flow

Ⓐ If you are connecting to a video input jack

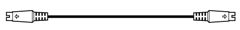
Connect the yellow plugs of the audio/video cord (supplied) to the yellow (video) jacks. You will enjoy standard quality images.


Yellow (Video)
White (L)
Red (R)
Yellow
White (L)
Red (R)

Use the red and white plugs to connect to the audio input jacks (page 21).

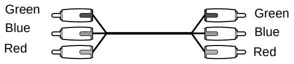
Ⓑ If you are connecting to an S VIDEO input jack

Connect the S VIDEO cord (supplied). You will enjoy high quality images.



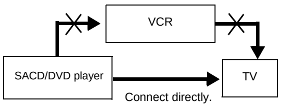
Ⓒ If you are connecting to a monitor, projector, or AV amplifier (receiver) having component video input jacks (Y, PB, PR)

Connect the component via the COMPONENT VIDEO OUT jacks using the component video cord (not supplied) or three video cords (not supplied) of the same kind and length. You will enjoy accurate color reproduction and high quality images.


Green
Blue
Red
Green
Blue
Red

Note

Do not connect your player to a VCR. You may not receive a clear image on the TV screen if you pass the player signals via the VCR.


VCR
SACD/DVD player
TV
Connect directly.

Step 2: Connecting the Audio Cords

Refer to the chart below to select the connection that best suits your system. The surround effects you will enjoy depend on the connections and components you use.

Select a connection

Select one of the following connections, A through D.

Connection	Components to be connected
A (page 21)	TV (stereo)
B (page 22)	AV amplifier (receiver) having 5.1ch input jacks • 4 speakers (front L and R, rear L and R) • 6 speakers (front L and R, center, rear L and R, subwoofer)
B (page 22)	AV amplifier (receiver) having a Dolby* Digital or DTS** decoder, and a digital input jack • 6 speakers (front L and R, center, rear L and R, subwoofer)
C (page 24)	Stereo amplifier (receiver) (having L and R audio input jacks only, or having a digital input jack) • 2 speakers (front L and R)
C (page 24)	MD deck/DAT deck
D (page 26)	AV amplifier (receiver) with a Dolby Surround (Pro Logic) decoder (having L and R audio input jacks only, or having a digital input jack) • 3 speakers (front L and R, and rear (monaural)) • 6 speakers (front L and R, center, rear L and R, subwoofer)

💡 To enjoy SACD Multi or 96 kHz/24 bit sound, use connection B.

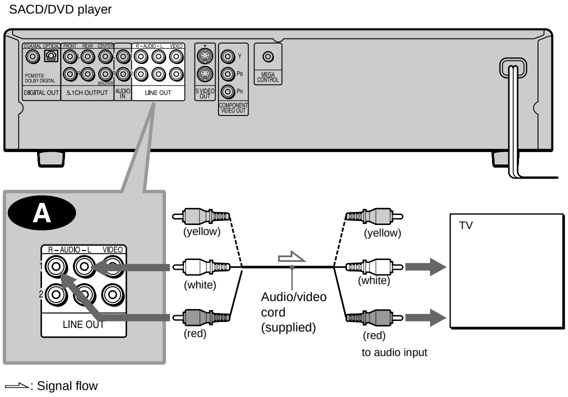
* Manufactured under license from Dolby Laboratories. "Dolby," "Pro Logic," and the double-D symbol are trademarks of Dolby Laboratories. Confidential unpublished works. © 1992-1997 Dolby Laboratories. All rights reserved.

** Manufactured under license from Digital Theater Systems, Inc. US PAT. No. 5,451,942 and other world-wide patents issues and pending. "DTS" and "DTS Digital surround" are trademarks of Digital Theater Systems, Inc. © 1996 Digital Theater Systems, Inc. All rights reserved.

A Connecting to your TV

This connection will use your TV speakers for sound.

■Recommended surround sound effects for this connection
- TVS DYNAMIC (page 58)
- TVS WIDE (page 58)


SACD/DVD player
A
R – AUDIO – L VIDEO
1
2
LINE OUT
(yellow)
(white)
(red)
Audio/video cord (supplied)
(yellow)
(white)
(red)
to audio input
TV
: Signal flow

The yellow plug is used for video signals (page 18).

continued ➡

B Connecting to an AV amplifier (having 5.1ch input jacks or a digital input jack) and 4 to 6 speakers

If your AV amplifier (receiver) has 5.1 channel inputs, use B-1.
If you want to use the Dolby Digital or DTS decoder function on your AV amplifier (receiver), connect to its digital jack using B-2. With the following connections, you can enjoy a more realistic audio presence in the comfort of your own home.

B-1: Connecting to the 5.1ch input jacks

You can enjoy 5.1ch surround sound using the internal Dolby Digital, DTS or SACD Multi decoder of this player. You can also enjoy Dolby Surround (Pro Logic) sounds, or surround sounds using various “SURROUND” modes (page 58).

■Recommended surround sound effects for this connection
When 6 speakers are connected (Set “SURROUND” to “OFF.”)
- Dolby Digital (5.1ch) (page 92)
- DTS (5.1ch) (page 92)
- SACD Multi-channel (page 93)

B-2: Connecting to a digital jack

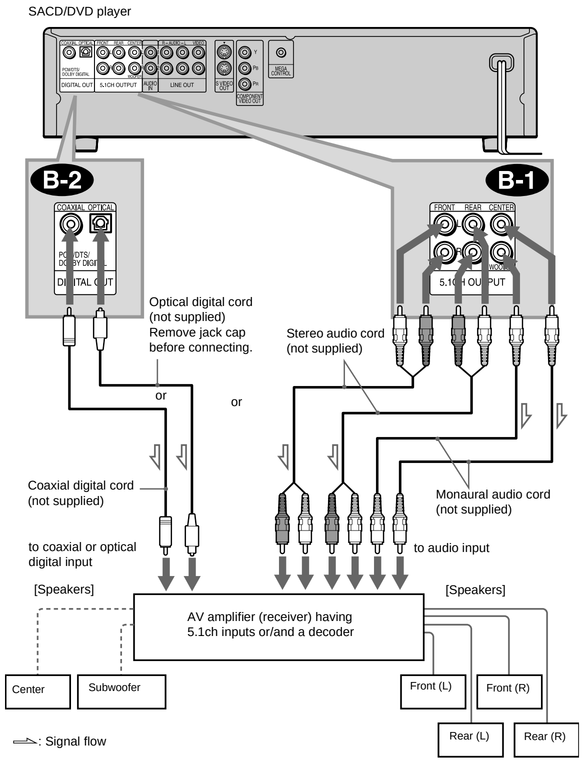
This connection will allow you to use the Dolby Digital or DTS decoder function of your AV amplifier (receiver). You are not able to enjoy the surround sound effects of the player.

■Recommended surround sound effects using this connection with your amplifier (receiver)
- Dolby Digital (5.1ch) (page 92)
- DTS (5.1ch) (page 92)
- 96 kHz/24 bit PCM

💡 Refer to the operating instructions of the AV amplifier (receiver) for correct speaker setting location when using the B-2 connection.

Notes

- After you have completed the connection, be sure to set “DOLBY DIGITAL” to “DOLBY DIGITAL” (page 84) and “DTS” to “DTS” (page 85). Otherwise, no sound or a loud noise will come from the speakers.
- When you connect an amplifier (receiver) that conforms to the 96 kHz sampling frequency, set “48kHz/96kHz PCM” to “96kHz/24bit” (page 85).
- SACD audio signals are not output from a digital jack.


SACD/DVD player
B-2
COAXIAL OPTICAL
PCM/DTS/DOLBY DIGITAL
DIGITAL OUT
B-1
FRONT REAR CENTER
WOOFER
5.1CH OUTPUT
Optical digital cord (not supplied) Remove jack cap before connecting.
Stereo audio cord (not supplied)
or
or
Coaxial digital cord (not supplied)
Monaural audio cord (not supplied)
to coaxial or optical digital input
to audio input
[Speakers]
[Speakers]
AV amplifier (receiver) having 5.1ch inputs or/and a decoder
Center
Subwoofer
Front (L)
Front (R)
Rear (L)
Rear (R)
⇨: Signal flow

💡 To enhance the surround sound effects:
- Use high-performance speakers.
- Use front, rear, and center speakers having the same size and performance.
- Place a subwoofer between the right and left front speakers.

continued ➡

C Connecting to a stereo amplifier (receiver) and 2 speakers/Connecting to an MD deck or DAT deck

This connection will use your 2 front speakers connected to your stereo amplifier (receiver) for sound. If the stereo amplifier (receiver) has audio input jacks L and R only, use C-1. If the amplifier (receiver) has a digital input jack, use C-2. When connecting to an MD deck or a DAT deck, use C-2. In this case, you can also connect the player directly to the MD deck or DAT deck without using your stereo amplifier (receiver).

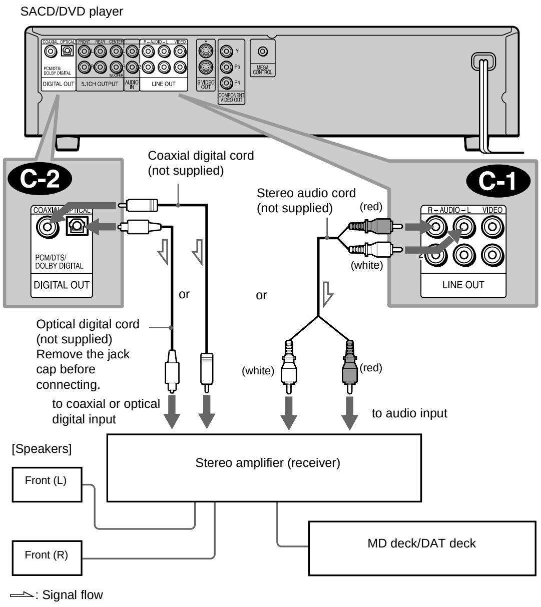
■Recommended surround sound effects for the C-1 connection only
- TVS STANDARD (page 58)

💡 In connection C-1, you can use the supplied audio/video cord instead of using a separate audio cord.

💡 To realize better surround sound effects, make sure that your listening position is in between your speakers.

Note

SACD audio signals are not output from a digital jack.


SACD/DVD player
C-2
COAXIAL OPTICAL
PCM/DTS/DOLBY DIGITAL
DIGITAL OUT
Coaxial digital cord (not supplied)
C-1
Stereo audio cord (not supplied)
(red)
R – AUDIO – L VIDEO
(white)
LINE OUT
or
or
Optical digital cord (not supplied) Remove the jack cap before connecting.
(white)
(red)
to coaxial or optical digital input
to audio input
[Speakers]
Stereo amplifier (receiver)
Front (L)
Front (R)
MD deck/DAT deck
⇨: Signal flow

continued ➡

D Connecting to a Dolby Surround (Pro Logic) decoder amplifier (receiver) and 3 to 6 speakers

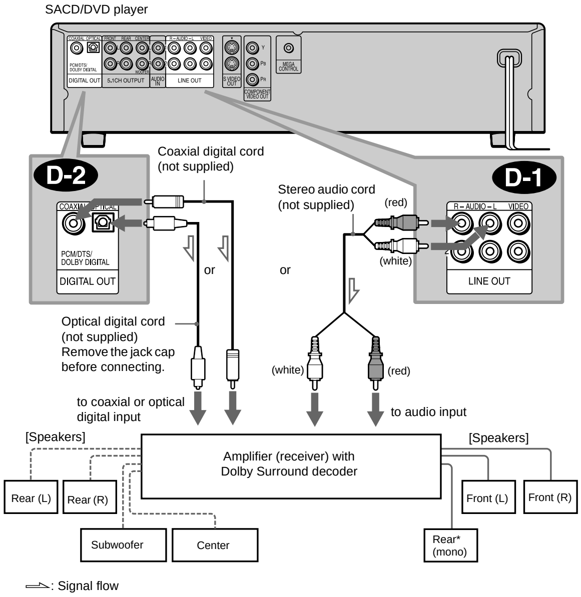
This connection will allow you to enjoy the surround effects of the Dolby Surround (Pro Logic) decoder on your amplifier (receiver). If you have an AV amplifier (receiver) equipped with a Dolby Digital or DTS decoder, refer to page 22.
You can enjoy the Dolby Surround effects only when playing Dolby Surround audio or multichannel audio (Dolby Digital) discs.
This connection needs a minimum of 3 speakers (front L and R, and rear (monaural)). The surround effects are enhanced if 6 speakers (front L and R, center, rear L and R, and subwoofer) are used.
If your amplifier (receiver) has R and L audio input jacks only, use D-1. If your amplifier (receiver) has a digital input jack, use D-2.

■Recommended surround sound effects using this connection with your amplifier (receiver)
- Dolby Surround (Pro Logic) (page 92)

💡 For correct speaker setting location, please refer to the operating instructions of the amplifier (receiver).

Note

SACD audio signals are not output from a digital jack.


SACD/DVD player
D-2
Coaxial digital cord
(not supplied)
COAXIAL
OPTICAL
PCM/DTS/
DOLBY DIGITAL
DIGITAL OUT
or
Stereo audio cord
(not supplied)
(red)
(white)
or
D-1
R – AUDIO – L
VIDEO
LINE OUT
Optical digital cord
(not supplied)
Remove the jack cap
before connecting.
(white)
(red)
to coaxial or optical
digital input
to audio input
[Speakers]
[Speakers]
Amplifier (receiver) with
Dolby Surround decoder
Rear (L)
Rear (R)
Front (L)
Front (R)
Subwoofer
Center
Rear*
(mono)
: Signal flow

* When connecting 6 speakers, replace the monaural rear speaker with a center speaker, 2 rear speakers and a subwoofer.

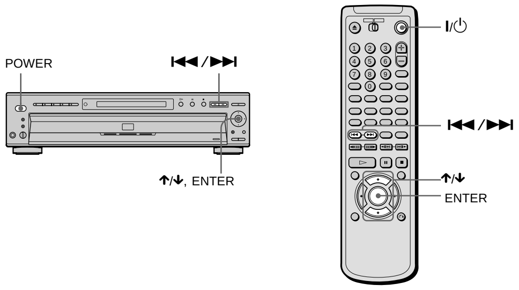
Step 3: Connecting the Power Cord

Plug the player and TV power cords into an AC outlet.

Do not connect the power cord of your player to the “switched” power socket of an amplifier (receiver). Otherwise, when you turn off the power of your amplifier (receiver), the settings for the player may be lost.

Step 4: Quick Setup

Follow the steps below to make the minimum number of basic adjustments to use the player. To skip an adjustment press ▶▶I, to return to the previous adjustment, press I◀◀.

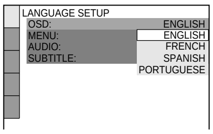

POWER
I◀◀/▶▶I
↑/↓, ENTER
I/⏻
I◀◀/▶▶I
↑/↓
ENTER

1 **Turn on the TV.**

2 **Switch the input selector on the TV to the player.**

3 **Press POWER on the player and press I/⏻ on the remote.**
“Press [ENTER] to run QUICK SETUP.” appears at the bottom of the screen. If this message does not appear, select “QUICK” under “SETUP” in the Control Menu (page 77) to run Quick Setup.

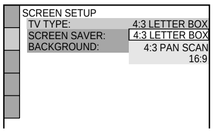
4 **Press ENTER without inserting a disc.**
The Setup Display for selecting the language used in the on-screen display appears.



LANGUAGE SETUP
OSD: ENGLISH
MENU: ENGLISH
AUDIO: FRENCH
SUBTITLE: SPANISH
PORTUGUESE

5 **Press ↑/↓ to select a language.**
The player uses the language selected here to display the menu and subtitles as well.

6 **Press ENTER.**
The Setup Display for selecting the aspect ratio of the TV to be connected appears.

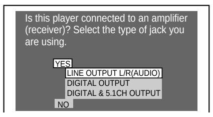


SCREEN SETUP
TV TYPE: 4:3 LETTER BOX
SCREEN SAVER: 4:3 LETTER BOX
BACKGROUND: 4:3 PAN SCAN
16:9

7 **Press ↑/↓ to select the item.**

TV Type	You select	Page
4:3 standard TV	4:3 LETTER BOX or 4:3 PAN SCAN	79
A wide-screen TV or 4:3 standard TV with the wide-screen mode	16:9	79

8 **Press ENTER.**
The Setup Display for selecting the type of jack used to connect your amplifier (receiver) appears.



Is this player connected to an amplifier (receiver)? Select the type of jack you are using.
YES
LINE OUTPUT L/R(AUDIO)
DIGITAL OUTPUT
DIGITAL & 5.1CH OUTPUT
NO

9 **Press ↑/↓ to select the item, then press ENTER.**

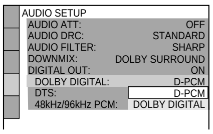
Audio Cord Connecting Type	You select
C-1 D-1	LINE OUTPUT L/R (AUDIO)
B-2 C-2 D-2	DIGITAL OUTPUT
B-1 or both B-1 and B-2	DIGITAL & 5.1CH OUTPUT
A	NO

- When “NO” or “LINE OUTPUT L/R (AUDIO)” is selected, Quick Setup is finished and connections are complete.
- When “DIGITAL OUTPUT” or “DIGITAL & 5.1CH OUTPUT” is selected, the Setup Display for “DOLBY DIGITAL” appears.

continued ➡

10 Press ↑/↓ to select the item.

Choose the item that matches the audio connection you selected in pages 22 to 26 (B through D).

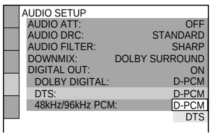


```
AUDIO SETUP
 AUDIO ATT:                    OFF
 AUDIO DRC:               STANDARD
 AUDIO FILTER:               SHARP
 DOWNMIX:          DOLBY SURROUND
 DIGITAL OUT:                   ON
   DOLBY DIGITAL:            D-PCM
   DTS:                      D-PCM
   48kHz/96kHz PCM:  DOLBY DIGITAL
```

Audio Cord Connection Type	You select	Page
C-2 D-2	D-PCM	83
B-2	DOLBY DIGITAL (only if the amplifier/receiver has a Dolby Digital decoder)	83

11 Press ENTER.

"DTS" is selected.



```
AUDIO SETUP
 AUDIO ATT:                    OFF
 AUDIO DRC:               STANDARD
 AUDIO FILTER:               SHARP
 DOWNMIX:          DOLBY SURROUND
 DIGITAL OUT:                   ON
   DOLBY DIGITAL:            D-PCM
   DTS:                      D-PCM
   48kHz/96kHz PCM:          D-PCM
                               DTS
```

12 Press ↑/↓ to select the item.

Choose the item that matches the audio connection you selected in pages 22 to 26 (B through D).

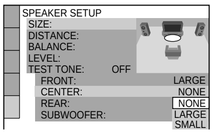
Audio Cord Connection Type	You select	Page
C-2 D-2	D-PCM	83
B-2	DTS (only if the amplifier/receiver has a DTS decoder)	83

13 Press ENTER.

- When "DIGITAL OUTPUT" is selected in Step 8, Quick Setup is finished. All connections and setup operations are complete.
- When "DIGITAL & 5.1CH OUTPUT" is selected in Step 8, the Setup display for "SPEAKER SETUP" appears.

14 Press ↑/↓ to select the size of the center speaker.

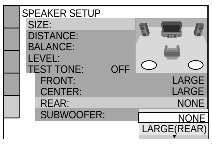
If no center speaker is connected, select "NONE." Refer to page 86 for each selection item.



```
SPEAKER SETUP
 SIZE:
 DISTANCE:
 BALANCE:
 LEVEL:
 TEST TONE:     OFF
   FRONT:                LARGE
   CENTER:                NONE
   REAR:                  NONE
   SUBWOOFER:            LARGE
                         SMALL
```

15 Press ENTER.

The Setup Display for selecting the size of the rear speaker appears.



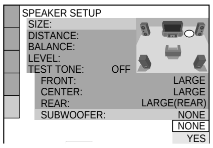
```
SPEAKER SETUP
 SIZE:
 DISTANCE:
 BALANCE:
 LEVEL:
 TEST TONE:     OFF
   FRONT:                LARGE
   CENTER:               LARGE
   REAR:                  NONE
   SUBWOOFER:             NONE
                   LARGE(REAR)
```

16 Press ↑/↓ to select the size.

If no rear speaker is connected, select "NONE."
"SIDE" and "REAR" refer to the speakers' position relative to your listening position.
Refer to page 86 for each selection item.

17 Press ENTER.

The Setup Display for selecting whether or not you have connected a subwoofer appears.



```
SPEAKER SETUP
 SIZE:
 DISTANCE:
 BALANCE:
 LEVEL:
 TEST TONE:     OFF
   FRONT:                LARGE
   CENTER:               LARGE
   REAR:           LARGE(REAR)
   SUBWOOFER:             NONE
                          NONE
                           YES
```

18 Press ↑/↓ to select the item.

19 Press ENTER.

Quick Setup is finished. All connections and setup operations are complete.

continued ➡

Note

You can directly start Quick Setup only when you run it for the first time.
To run Quick Setup a second time, select "QUICK" under "SETUP" in the Control Menu (page 77).

Enjoying the surround sound effects

To enjoy the surround sound effects of this player or your amplifier (receiver), the following items must be set as described below for the audio connection you selected in pages 22 to 26 (B through D). Each of these are the default settings and do not need to be adjusted when you first connect the player. Refer to page 77 for using the Setup Display.

Audio Connection (pages 21 to 26)

A

No additional settings are needed.

B-1

Item	You select	Page
DISTANCE BALANCE LEVEL	Set according to the connected speakers	86

- If the sound distorts even when the volume is turned down, set "AUDIO ATT" to "ON" (page 83).

B-2 C-2 D-2

Item	You select	Page
DOWNMIX	DOLBY SURROUND	84
DIGITAL OUT	ON	84

- Set "48kHz/96kHz PCM" to "96kHz/24bit," only if you connect an amplifier (receiver) that conforms to 96 kHz digital audio input (page 85).

C-1 D-1

Item	You select	Page
DOWNMIX	DOLBY SURROUND	84

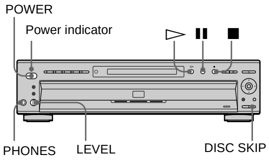
- If the sound distorts even when the volume is turned down, set "AUDIO ATT" to "ON" (page 83).

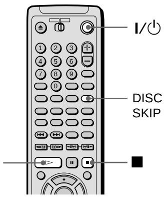
Playing Discs

DVD VIDEO DVD-RW VIDEO CD SACD CD

Depending on the DVD or VIDEO CD, some operations may be different or restricted.

Refer to the operating instructions supplied with your disc.





1 Turn on your TV.

2 Switch the input selector on the TV to the player.

When using an amplifier (receiver)

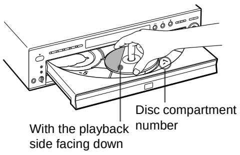
Turn on the amplifier (receiver) and select the appropriate channel.

3 Press POWER.

The player enters standby mode and the power indicator lights up in red.

4 Press ≜ on the player, and place a disc on the disc tray.

The player automatically turns on and the power indicator lights up in green.
To place other discs on the tray, press DISC SKIP and place the discs in the order you want to play them.
Each time you press DISC SKIP, the disc tray turns so you can place the discs on the empty compartments. The player plays from the last disc placed on the tray.



With the playback side facing down
Disc compartment number

5 Press ▷.

The disc tray closes, and the player starts playback (continuous play). Adjust the volume on the TV or the amplifier (receiver).

After following Step 5

Depending on the disc, a menu may appear on the TV screen. You can play the disc interactively by following the instructions on the menu. DVD VIDEO (page 37), VIDEO CD (page 39).

continued ➡

To turn on the player

Press POWER on the player. The player enters standby mode and the power indicator lights up in red. Press I/⏻ on the remote. The player turns on and the power indicator lights up in green. In standby mode, the player also turns on by pressing ⏏ on the player or by pressing ▷.

To turn off the player

Press I/⏻ on the remote. The player enters standby mode and the power indicator lights up in red. To turn off the player completely, press POWER on the player. While playing a disc, do not turn off the player by pressing POWER. Doing so may cancel the menu settings. When you turn off the player, first press ■ to stop playback and then press I/⏻ on the remote.

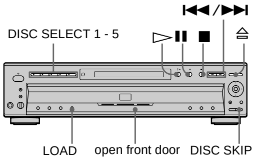
To use headphones

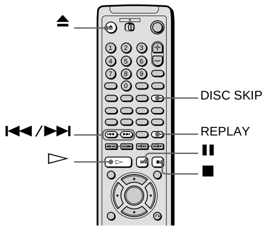
Connect headphones to the PHONES jack and adjust the headphones volume by turning LEVEL.

Note

SACD audio signals are not output from the digital jack.

Additional operations





To	Operation
Select a disc	Press DISC SELECT 1 - 5 on the player
Stop	Press ■
Pause	Press ❚❚
Resume play after pause	Press ❚❚ or ▷
Go to the next disc	Press DISC SKIP
Go to the next chapter, track, or scene in continuous play mode	Press ▶▶|
Go back to the preceding chapter, track, or scene in continuous play mode	Press |◀◀
Stop play and remove the disc	Press ⏏
Replay a previous scene (DVD VIDEO only)	Press REPLAY
Check if a disc is in the disc compartment	Press LOAD on the player. The DISC SELECT indicator for each compartment (1 - 5) containing a disc lights up.

💡 The Replay function is useful when you want to review a scene or dialog that you missed.

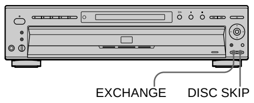
💡 Before loading the discs, a DISC SELECT indicator of an empty compartment may be lit.

Notes

- You may not be able to use the Replay function with some scenes.
- If you turn the power off by pressing POWER on the player, the loading information will be reset.

Replacing discs while playing a disc (EXCHANGE)

You can open the disc tray while playing a disc so that you can check which discs are to be played next and replace discs without interrupting playback of the current disc.



1 Press EXCHANGE.
The disc tray opens and two disc compartments appear. Even if the player is playing a disc, it doesn't stop playing.

2 Replace the discs in the compartments with new ones.

3 Press DISC SKIP.
The disc tray turns and another two disc compartments appear.

4 Replace the discs in the compartments with new ones.

5 Press EXCHANGE.
The disc tray closes.

💡 While the disc tray is open,
- If the playback of the current disc ends, the player stops playing. If the disc is played in One Disc Repeat Play mode, the current disc starts playing again.
- In All Discs Shuffle Play mode (page 43), titles/tracks/chapters are reshuffled only on the current disc.
- In Program Play mode (page 41), the titles/tracks/chapters only on the current disc are played.

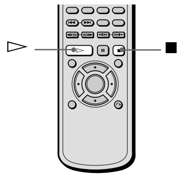
Note

Do not push the disc tray to close in Step 5, as you may damage the player.

Resuming Playback from the Point Where You Stopped the Disc (Resume Play)

DVD VIDEO DVD-RW VIDEO CD SACD CD

When you stop the disc, the player remembers the point where you pressed ■ and "RESUME" appears on the front panel display. As long as you do not remove the disc, Resume Play works even if the player enters standby mode by pressing I/⏻.



1 While playing a disc, press ■ to stop playback.
"RESUME" appears on the front panel display and you can restart the disc from the point where you stopped the disc.
If "RESUME" does not appear, Resume Play is not available.

2 Press ▷.
The player starts playback from the point where you stopped the disc in Step 1.

💡 To play from the beginning of the disc, press ■ twice, then press ▷.

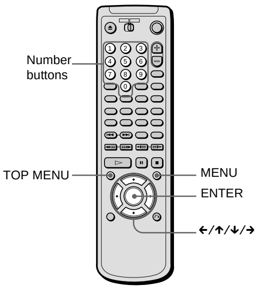
Notes

- Depending on where you stopped the disc, the player may not resume playback from exactly the same point.
- The point where you stopped playing is cleared when:
  - you turn the power off by pressing POWER on the player.
  - you change the play mode.
  - you change the settings on the Setup Display.
  - you load disc information by pressing LOAD on the player
  - you press MEGA CONTROL

Using the DVD's Menu

DVD VIDEO

A DVD is divided into long sections of a picture or a music feature called "titles." When you play a DVD which contains several titles, you can select the title you want using the TOP MENU button.
When you play DVDs that allow you to select items such as the language for the subtitles and the language for the sound, select these items using the MENU button.



1 Press TOP MENU or MENU.
The disc's menu appears on the TV screen.
The contents of the menu vary from disc to disc.

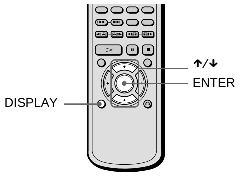
2 Press ←/↑/↓/→ or the number buttons to select the item you want to play or change.

3 Press ENTER.

💡 You can also display the disc's menu by pressing TOP MENU or MENU on the player.

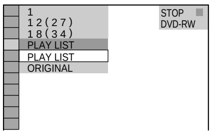
Selecting "ORIGINAL" or "PLAY LIST" on a DVD-RW Disc DVD-RW

Some DVD-RW discs in VR (Video Recording) mode have two types of titles for playback: originally recorded titles (ORIGINAL) and titles that can be created on recordable DVD players for editing (PLAY LIST). You can select the type of titles to be played.



1 Press DISPLAY in stop mode.
The Control Menu appears.

2 Press ↑/↓ to select (ORIGINAL/PLAY LIST), then press ENTER.
The options for "ORIGINAL/PLAY LIST" appear.



continued ➡

3 Press ↑/↓ to select the setting.

- PLAY LIST: plays the titles created from “ORIGINAL” for editing.
- ORIGINAL: plays the titles originally recorded.

4 Press ENTER.

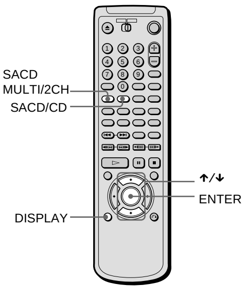
To turn off the Control Menu

Press DISPLAY repeatedly until the Control Menu is turned off.

Note

Repeat Play and A-B Repeat Play work only within the titles of the selected type.

Selecting a Playback Area for an SACD Disc SACD



Selecting a playback area on a 2 channel + Multi-channel SACD

Some SACDs consist of a 2 channel playback area and a multi-channel playback area. You can select the playback area you want to listen to.

Press SACD MULTI/2CH in stop mode.

Each time you press the button, the “MULTI” indicator turns on and off in the front panel display. When no indicator appears, the 2 channel playback area is selected.

To select a playback area using the Control Menu

1 Press DISPLAY.
The Control Menu appears.

2 Press ↑/↓ to select (MULTI/2CH), then press ENTER.

3 Press ↑/↓ to select the playback area, “MULTI” or “2CH,” then press ENTER.

Selecting a playback layer when playing a hybrid SACD

Some SACDs consist of an HD layer and a CD layer. You can select the playback layer you want to listen to.

Press SACD/CD in stop mode.

Each time you press the button, an HD layer or a CD layer is alternately selected. When playing a CD layer, the “CD” indicator in the front panel display lights up.

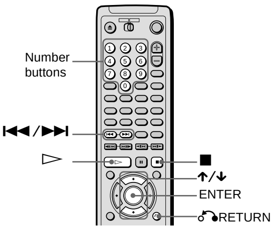
Notes

- For details about SACD discs, see page 92 (Super Audio CD).
- Each play mode function works only within the selected layer or playback area.

Playing VIDEO CDs with PBC Functions (PBC Playback)

VIDEO CD

With PBC (Playback Control) functions, you can enjoy simple interactive operations, search functions, and other operations.
PBC playback allows you to play VIDEO CDs interactively by following the menu on the TV screen.



1 Start playing a VIDEO CD with PBC functions.
The menu for your selection appears.

2 Select the item number you want by pressing ↑/↓ or the number buttons.

3 Press ENTER.

4 Follow the instructions in the menu for interactive operations.
Refer to the instructions supplied with the disc, as the operating procedure may differ according to the VIDEO CD.

continued ➡

To go back to the menu

Press RETURN.

💡 To play without using PBC, press ⏮/⏭ or the number buttons while the player is stopped to select a track, then press ▷ or ENTER.
“Play without PBC.” appears on the TV screen and the player starts continuous play. You cannot play still pictures such as a menu.
To return to PBC playback, press ■ twice then press ▷.

Note

Depending on the VIDEO CD, “Press ENTER” in Step 3 may appear as “Press SELECT” in the instructions supplied with the disc. In this case, press ▷.

Various Play Mode Functions (Program Play, Shuffle Play, Repeat Play, A-B Repeat Play)

You can set the following play modes:

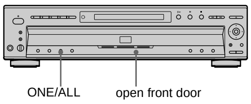
- Program Play (page 41)
- Shuffle Play (page 43)
- Repeat Play (page 44)
- A-B Repeat Play (page 45)

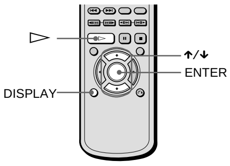
Note

- The play mode is canceled when:
  - you open the disc tray.
  - the player enters standby mode by pressing I/⏻ on the remote.
  - you turn the power off by pressing POWER on the player.

Selecting the disc mode (One disc or All discs)

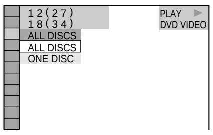
You can play one disc or all of the discs in the player. Before setting Program Play, Shuffle Play, or Repeat Play, you must select whether to set those play mode on one disc or all of the discs.





1 Press DISPLAY twice.
The Control Menu appears.

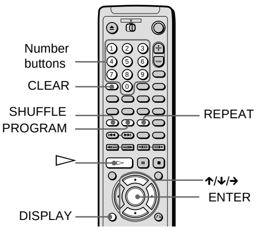
2 Press ↑/↓ to select (ONE/ALL DISCS) and press ENTER.
The options for “ONE/ALL DISCS” appear.



💡 You can select “ALL DISCS” or “ONE DISC” by pressing ONE/ALL on the player. Each time you press the button, the disc mode changes alternately.

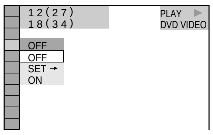
Creating your own program (Program Play) DVD VIDEO VIDEO CD SACD CD

You can play the contents of the discs in the order you want by arranging the order of the discs, titles, chapters, or tracks to create your own program. You can program up to 99 titles, chapters, and tracks. By selecting All Discs mode (page 40), you can create a program for all of the discs in the player.

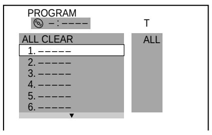


1 Press DISPLAY twice.
The Control Menu appears.

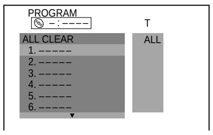
2 Press ↑/↓ to select (PROGRAM) and press ENTER.
The options for “PROGRAM” appear.



3 Press ↑/↓ to select “SET→” and press ENTER.
The display for programming appears.



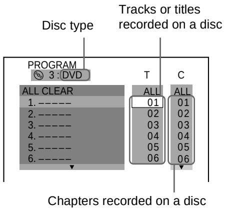
4 Press →.
The player is ready to program the first disc.



continued ➡

5 Select the disc you want to program using the number buttons or ↑/↓, then press ENTER.

The cursor moves to the title or track (in this case, "01").

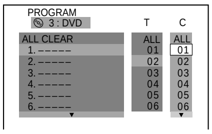


6 Select the title, chapter, or track you want to program.

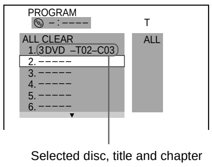
■ When playing a DVD

For example, select chapter "03" of title "02."

Press ↑/↓ or the number buttons to select "02" under "T," then press ENTER.



Next, press ↑/↓ or the number buttons to select "03" under "C," then press ENTER.

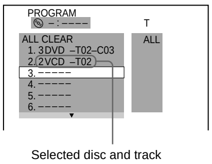


■ When playing a VIDEO CD, SACD, or CD

For example, select track "02."

Press ↑/↓ or the number buttons to select "02" under "T," then press ENTER.

A track number may be displayed in 3 digits for an SACD.



7 To program other titles, chapters, or tracks, repeat Steps 4 to 6.

The programmed discs, titles, chapters, and tracks are displayed in the selected order.

8 Press ▷ to start Program Play.

Program Play begins.

When the program ends, you can restart the same program again by pressing ▷.

To return to normal play

Press CLEAR, or select "OFF" in Step 3. To play the same program again, select "ON" in Step 3 and press ▷.

To turn off the Control Menu

Press DISPLAY repeatedly until the Control Menu is turned off.

To change or cancel a program

1 Follow Steps 1 through 3 of "Creating your own program (Program Play)."

2 Select the program number of the disc, title, chapter, or track you want to change or cancel using ↑/↓ or the number buttons, and press →.

3 Follow Step 5 for new programming. To cancel a program, select the program and press CLEAR.

To cancel all the titles, chapters, or tracks in the programmed order

1 Follow Steps 1 through 3 of "Creating your own program (Program Play)."

2 Press ↑ and select "ALL CLEAR."

3 Then press ENTER.

You can do Repeat Play or Shuffle Play of the programmed titles, chapters, or tracks by pressing REPEAT or SHUFFLE, or to activate "REPEAT" or "SHUFFLE" during Program Play.

You can select "PROGRAM" directly by pressing PROGRAM.

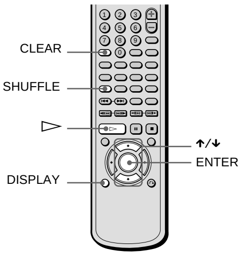
Note

The number of titles, chapters, or tracks displayed are the same number of titles, chapters, or tracks recorded on a disc.

Playing in random order (Shuffle Play)

DVD VIDEO **DVD-RW** **VIDEO CD** **SACD** **CD**

You can have the player "shuffle" discs, titles, chapters, or tracks and play them in a random order. Subsequent "shuffling" may produce a different playing order. By selecting All Discs mode (page 40), you can shuffle all of the discs in the player.

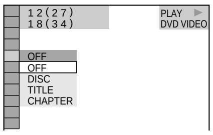


1 Press DISPLAY twice during playback.

The Control Menu appears.

2 Press ↑/↓ to select (SHUFFLE), then press ENTER.

The options for "SHUFFLE" appear.



continued ➡

3 Press ↑/↓ to select the item.

■ When playing a DVD VIDEO (Program Play is set to "OFF")

- DISC*: Shuffles discs and plays them in random order.
- TITLE: Shuffles titles and plays them in random order.
- CHAPTER: Shuffles chapters and plays them in random order.

■ When playing a DVD-RW

- DISC*: Shuffles discs and plays them in random order.

■ When playing a VIDEO CD/SACD/CD (Program Play is set to "OFF")

- DISC*: Shuffles discs and plays them in random order.
- TRACK: Shuffles tracks and plays them in random order.

* Appears only when you select All Discs mode.

■ When Program Play is set to "ON"

- ON: Shuffles titles or tracks selected in Program Play and plays them in random order.

4 Press ENTER.

To return to normal play

Press CLEAR or select "OFF" in Step 3.

To turn off the Control Menu

Press DISPLAY repeatedly until the Control Menu is turned off.

You can set the Shuffle Play while the player is stopped. After selecting the "SHUFFLE" option, press ▷. Shuffle Play starts.

You can select "SHUFFLE" directly by pressing SHUFFLE. Each time you press the button, the item changes.

Note

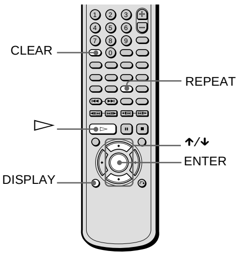
Up to 96 chapters in a disc can be played in random order when "CHAPTER" is selected.

Playing repeatedly (Repeat Play)

DVD VIDEO **DVD-RW** **VIDEO CD** **SACD** **CD**

You can play all discs, or all of the titles or tracks on a disc or a single title, chapter, or track repeatedly.

You can use a combination of Shuffle or Program Play modes. By selecting All Discs mode (page 40), you can repeat all of the discs in the player.

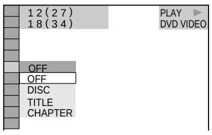


1 Press DISPLAY twice during playback.

The Control Menu appears.

2 Press ↑/↓ to select (REPEAT), the press ENTER.

The options for "REPEAT" appear.



3 Press ↑/↓ to select the item.

■ When playing a DVD VIDEO (Program Play and Shuffle Play are set to "OFF")

- DISC: Repeats all of the titles on the disc when you select One Disc mode, or all of the titles on all of the discs when you select All Discs mode.
- TITLE: Repeats the current title on a disc.
- CHAPTER: Repeats the current chapter.

■ When playing a DVD-RW

- DISC: Repeats all of the titles of the selected type when you select One Disc mode, or all of the titles on all of the discs when you select All Discs mode.
- TITLE: Repeats the current title on a disc.
- CHAPTER: Repeats the current chapter.

■ When playing a VIDEO CD/SACD/CD (Program Play and Shuffle Play are set to "OFF")

- DISC: Repeats all of the tracks on a disc when you select One Disc mode, or all of the tracks on all of the discs when you select All Discs mode.
- TRACK: Repeats the current track.

■ When Program Play is set to "ON" or Shuffle Play is activated

- ON: Repeats Program Play or Shuffle Play.

4 Press ENTER.

To return to normal play

Press CLEAR or select "OFF" in Step 3.

To turn off the Control Menu

Press DISPLAY repeatedly until the Control Menu is turned off.

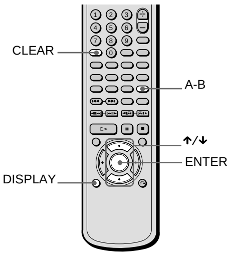
You can set Repeat Play while the player is stopped. After selecting the "REPEAT" option, press ▷. Repeat Play starts.

You can select "REPEAT" directly by pressing REPEAT. Each time you press the button, the item changes.

Repeating a specific portion (A-B Repeat Play)

DVD VIDEO **DVD-RW** **VIDEO CD** **SACD** **CD**

You can play a specific portion of a title, chapter, or track repeatedly. (This function is useful when you want to memorize lyrics, etc.)

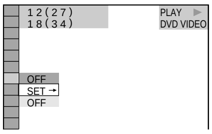


1 Press DISPLAY twice during playback.

The Control Menu appears.

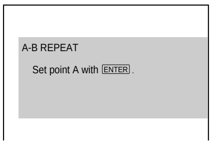
2 Press ↑/↓ to select (A-B REPEAT), then press ENTER.

The options for "A-B REPEAT" appear.

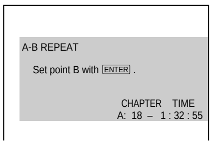


continued ➡

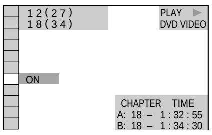
3 Press ↑/↓ to select "SET →," then press ENTER.
The "A-B REPEAT" setting display appears.


A-B REPEAT
Set point A with ENTER .

4 During playback, when you find the starting point (point A) of the portion to be played repeatedly, press ENTER.
The starting point (point A) is set.


A-B REPEAT
Set point B with ENTER .
CHAPTER TIME
A: 18 – 1 : 32 : 55

5 When you reach the ending point (point B), press ENTER again.
The set points are displayed and the player starts repeating this specific portion.
"A-B" appears on the front panel display during A-B Repeat Play.



CHAPTER TIME
A: 18 – 1 : 32 : 55
B: 18 – 1 : 34 : 30

To return to normal play

Press CLEAR, or select "OFF" in Step 3.

To turn off the Control Menu

Press DISPLAY repeatedly until the Control Menu is turned off.

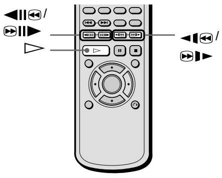
💡 You can select "A-B REPEAT" directly by pressing A-B. Press the button once to set the point A, and press it again to set the point B.

Notes

- You can set A-B Repeat Play for only one specific section.
- When you set A-B Repeat Play, the settings for Shuffle Play, Repeat Play, and Program Play are canceled.
- A-B Repeat Play does not work for titles containing still pictures on a DVD-RW in VR mode.
- You cannot set the starting point (point A) on one disc and ending point (point B) on another disc.

Searching for a Particular Point on a Disc (Search, Scan, Slow-motion Play, Freeze Frame)

You can locate a particular point on a disc quickly by monitoring the picture or playing back slowly.



Note

Depending on the DVD/VIDEO CD, you may not be able to do some of the operations described.

Locating a point quickly (Search)

DVD VIDEO DVD-RW VIDEO CD SACD CD

During playback, keep pressing ⏩❚► to locate a point in the playback direction or keep pressing ◄❚⏪ to locate a point in the opposite direction. When you find the point you want, release the button to return to normal playback speed.

Locating a point quickly by playing a disc in fast forward or fast reverse (Scan)

DVD VIDEO DVD-RW VIDEO CD SACD CD

Press ◄❚⏪ or ⏩❚► while playing a disc. When you find the point you want, press ▷ to return to normal speed.
Each time you press ◄❚⏪ or ⏩❚► during scan, the playback speed changes. Three speeds are available. With each press the indication changes as follows:

Playback direction
×2► (DVD VIDEO/SACD/CD only)
FF2►► ← FF1►►

Opposite direction
×2► (DVD VIDEO only)
FR2◄◄ ← FR1◄◄

The "×2►"/"×2◄" playback speed is about twice the normal speed. The "FF2►►"/"FR2◄◄" playback speed is faster than "FF1►►"/"FR1◄◄."

Watching frame by frame (Slow-motion Play)

DVD VIDEO DVD-RW VIDEO CD

Press ◄❚⏪ or ⏩❚► when the player is in pause mode. To return to the normal speed, press ▷.
Each time you press ◄❚⏪ or ⏩❚► during Slow-motion Play, the playback speed changes. Two speeds are available. With each press the indication changes as follows:

Playback direction
SLOW2❚► ←→ SLOW1❚►

Opposite direction (DVD only)
SLOW2◄❚ ←→ SLOW1◄❚

The "SLOW2❚►"/"SLOW2◄❚" playback speed is slower than "SLOW1❚►"/"SLOW1◄❚."

continued ➡

Playing one frame at a time

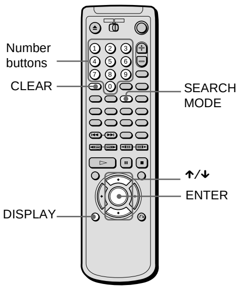
DVD VIDEO DVD-RW VIDEO CD

When the player is in the pause mode, press ⏩❚► to go to the next frame. Press ◄❚⏪ to go to the preceding frame (DVD VIDEO only). If you hold the button down, you can view the frames in succession. To return to normal playback, press ▷.

Searching for a Disc/Title/Chapter/Track/Index/Scene (Search mode)

DVD VIDEO DVD-RW VIDEO CD SACD CD

You can search a DVD by disc, title or chapter, and you can search a VIDEO CD/SACD/CD by track, index, or scene.
As title and tracks are assigned unique numbers on the disc, you can select the desired one by entering its number. Or, you can search for a scene using the time code.



1 Press DISPLAY.
The Control Menu appears.

2 Press ↑/↓ to select the search method.

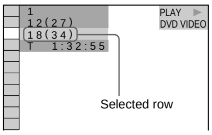
■ **When playing a DVD VIDEO/DVD-RW**
(DISC), (TITLE), (CHAPTER), or (TIME/TEXT)
Select "TIME/TEXT" for "Time search" (see below).

■ **When playing a VIDEO CD**
(DISC), (TRACK) or (INDEX)

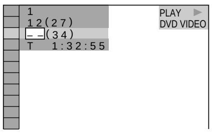
■ **When playing a VIDEO CD with PBC Playback**
(DISC), (SCENE)

■ **When playing an SACD/CD**
(DISC), (TRACK) or (INDEX)

Example: when you select (CHAPTER)
"∗∗ (∗∗)" is selected (∗∗ refers to a number).
The number in parentheses indicates the total number of titles, chapters, tracks, indexes or scenes.



3 Press ENTER.
"∗∗ (∗∗)" changes to "-- (∗∗)."



4 Press ↑/↓ or the number buttons to select the title, chapter, track, index, or scene number you want to search.

If you make a mistake
Cancel the number by pressing CLEAR, then select another number.

5 Press ENTER.
The player starts playback from the selected number.

To turn off the Control Menu

Press DISPLAY repeatedly until the Control Menu is turned off.

To search for a scene using the time code (Time search) (DVD VIDEO/DVD-RW only)

1 In Step 2, select (TIME/TEXT).
"T ∗∗:∗∗:∗∗" (playing time of the current title) is selected.

2 Press ENTER.
"T ∗∗:∗∗:∗∗" changes to "T --:--:--."

3 Input the time code using the number buttons, then press ENTER.
For example, to find the scene at 2 hours, 10 minutes, and 20 seconds after the beginning, just enter "2:10:20."

💡 You can select "TITLE," "CHAPTER," "TRACK," "INDEX," "SCENE" or "TIME/TEXT" directly by pressing SEARCH MODE repeatedly.

💡 When the Control Menu display is turned off, you can search for a chapter (DVD VIDEO/DVD-RW) or track (SACD/CD) by pressing the number buttons and ENTER.

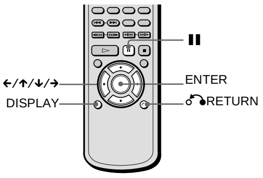
💡 You can display the first scene of titles, chapters, or tracks recorded on the disc on a screen divided into 9 scenes. You can start playback directly by selecting one of the scenes. For details, see "Searching by Scene (VIEWER)."

Notes

- The title, chapter or track number displayed is the same number recorded on the disc.
- You cannot search for a still picture on a DVD-RW in VR mode.

Searching by Scene (VIEWER)

You can divide the screen into 9 sub-screens and find the desired scene quickly.

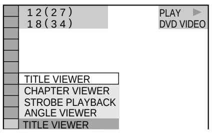

II
←/↑/↓/→
ENTER
DISPLAY
RETURN

1 Press DISPLAY twice during playback.

The Control Menu appears.

2 Press ↑/↓ to select (VIEWER), then press ENTER.

The options for “VIEWER” appear.


```
1 2 ( 2 7 )                  PLAY ▶
1 8 ( 3 4 )                  DVD VIDEO

TITLE VIEWER
CHAPTER VIEWER
STROBE PLAYBACK
ANGLE VIEWER
TITLE VIEWER
```

3 Press ↑/↓ to select the item.

Refer to the explanations given for each items in the following sections.

- TITLE VIEWER (for DVD VIDEO only)
- CHAPTER VIEWER (for DVD VIDEO only)
- TRACK VIEWER (for VIDEO CD only)
- STROBE PLAYBACK
- ANGLE VIEWER (for DVD VIDEO only)

4 Press ENTER.

To start playback from the selected scene

Select the scene using ←/↑/↓/→ and press ENTER. The playback starts from the selected scene.

To return to normal play

Press RETURN.

To turn off the Control Menu

Press DISPLAY repeatedly until the Control Menu is turned off.

Notes

- Depending on the disc, you may not be able to select all functions.
- The sound is muted when using this function.

Scanning the title, chapter, or track DVD VIDEO VIDEO CD

You can divide the screen into 9 sub-screens and display the first scene of titles, chapters, or tracks. You can also play back from the selected title, chapter, or track.

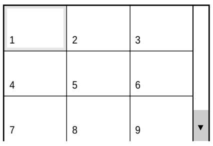
Select the item you want in Step 3, then press ENTER in Step 4.

■When playing a DVD VIDEO
Select “TITLE VIEWER” or “CHAPTER VIEWER.”

■When playing a VIDEO CD
Select “TRACK VIEWER.”

The initial scenes of titles, chapters, or tracks appear.

If there are more than 9 titles, chapters, or tracks, ▼ is displayed at the bottom right.
To display the additional titles, chapters, or tracks, select the bottom right scene (the position 9) and press ↓. To return to the previous scene, select the top left scene (the position 1) and press ↑.



Dividing a scene into 9 sections (STROBE PLAYBACK) DVD VIDEO VIDEO CD

You can display 9 consecutive moving pictures on the screen. When you press II, the moving pictures pause.
Select “STROBE PLAYBACK” in Step 3, then press ENTER in Step 4.

Displaying different angles simultaneously DVD VIDEO

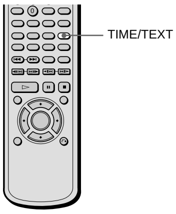
If various angles (multi-angles) for a scene are recorded on the DVD VIDEO, you can display all of the angles recorded on the disc on the same screen, and start playback in continuous mode at the chosen angle. The angles are displayed on a screen divided into 9 sections.

Select “ANGLE VIEWER” in Step 3, then press ENTER in Step 4.

Viewing the Playing Time and Remaining Time on the Front Panel Display

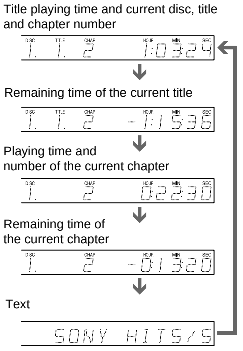
DVD VIDEO DVD-RW VIDEO CD SACD CD

You can check information about the disc, such as the remaining time, current title or track number, using the front panel display (page 9).

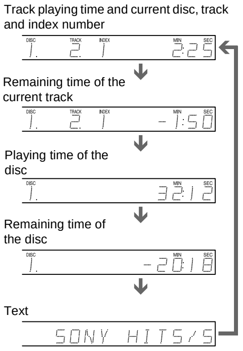


Press TIME/TEXT.
Each time you press TIME/TEXT while playing the disc, the display changes as shown in the following charts.

When playing a DVD VIDEO or DVD-RW


Title playing time and current disc, title and chapter number
DISC TITLE CHAP HOUR MIN SEC
1. 1. 2 1:03:24
Remaining time of the current title
DISC TITLE CHAP HOUR MIN SEC
1. 1. 2 -1:15:36
Playing time and number of the current chapter
DISC CHAP HOUR MIN SEC
1. 2 0:22:30
Remaining time of the current chapter
DISC CHAP HOUR MIN SEC
1. 2 -0:13:20
Text
SONY HITS/S

When playing a VIDEO CD (without PBC functions), SACD, or CD


Track playing time and current disc, track and index number
DISC TRACK INDEX MIN SEC
1. 2. 1 2:25
Remaining time of the current track
DISC TRACK INDEX MIN SEC
1. 2. 1 -1:50
Playing time of the disc
DISC MIN SEC
1. 32:12
Remaining time of the disc
DISC MIN SEC
1. -20:18
Text
SONY HITS/S

When playing VIDEO CDs with PBC functions, the scene number or the playing time is displayed.

The playing time and remaining time of the current chapter, title, track, scene, or disc will also appear on your TV screen. See the following section “Checking the Playing Time and Remaining Time” for instructions on how to read this information.

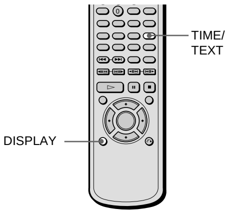
Note

Depending on the type of disc being played and the playing mode, the above mentioned disc information may not be displayed.

Checking the Playing Time and Remaining Time

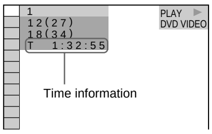
DVD VIDEO DVD-RW VIDEO CD SACD CD

You can check the playing time and remaining time of the current title, chapter, or track, and the playing time or remaining time of the disc. Also, you can check the DVD/SACD/CD text recorded on the disc.


TIME/TEXT
DISPLAY

1 Press DISPLAY during playback.

The Control Menu appears.


```
1                            PLAY ▶
1 2 ( 2 7 )                  DVD VIDEO
1 8 ( 3 4 )
T   1 : 3 2 : 5 5
```
Time information

continued ➡

2 Press TIME/TEXT repeatedly to change the time information.

The display and the kinds of time that you can change depend on the disc you are playing.

■ When playing a DVD VIDEO or DVD-RW

- T ∗∗:∗∗:∗∗
  Playing time of the current title
- T–∗∗:∗∗:∗∗
  Remaining time of the current title
- C ∗∗:∗∗:∗∗
  Playing time of the current chapter
- C–∗∗:∗∗:∗∗
  Remaining time of the current chapter

■ When playing a VIDEO CD (with PBC functions)

- ∗∗:∗∗
  Playing time of the current scene

■ When playing a VIDEO CD (without PBC functions), SACD, or CD

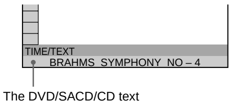
- T ∗∗:∗∗
  Playing time of the current track
- T–∗∗:∗∗
  Remaining time of the current track
- D ∗∗:∗∗
  Playing time of the current disc
- D–∗∗:∗∗
  Remaining time of the current disc

To turn off the Control Menu

Press DISPLAY repeatedly until the Control Menu is turned off.

Checking the DVD/SACD/CD text

Press TIME/TEXT repeatedly in Step 2 to display the text recorded on the DVD/SACD/CD. The DVD/SACD/CD text appears only when the text is recorded in the disc. You cannot change the text. If the disc does not contain text, "NO TEXT" appears.


TIME/TEXT
BRAHMS SYMPHONY NO – 4
The DVD/SACD/CD text

If the DVD/SACD/CD text does not fit on a single line, you can see the entire text by watching it scroll across the front panel display.

You can select the time and text directly by pressing TIME/TEXT.

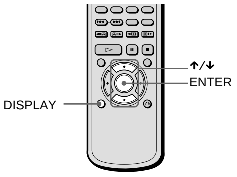
Notes

- This player can only display the first level of DVD/SACD/CD text, such as the disc's name or title.
- Depending upon the disc, the text may not be displayed.

Checking the Play Information (ADVANCED)

DVD VIDEO DVD-RW

You can check information such as the bit rate or the disc layer that is being played. While playing a disc, an approximate bit rate of the playback picture is always displayed as Mbps (Mega bit per second) and the audio as kbps (kilo bit per second).

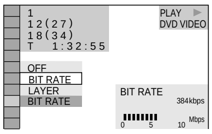

↑/↓
ENTER
DISPLAY

1 Press DISPLAY during playback.

The Control Menu is displayed.

2 Press ↑/↓ to select (ADVANCED), then press ENTER.

The options for "ADVANCED" appear.


1
12(27)
18(34)
T 1:32:55
PLAY
DVD VIDEO
OFF
BIT RATE
LAYER
BIT RATE
BIT RATE
384kbps
0 5 10
Mbps

3 Press ↑/↓ to select items.

For each item, please refer to "Displays of each item."

- BIT RATE: displays the bit rate.
- LAYER: displays the layer and the pick-up point.

4 Press ENTER.

To close the ADVANCED window

Select "OFF" in Step 3.

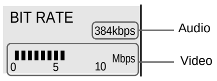
To turn off the Control Menu

Press DISPLAY repeatedly until the Control Menu is turned off.

Display of each item

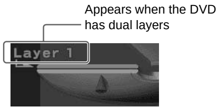
By pressing DISPLAY repeatedly, you can display either "BIT RATE" or "LAYER," whichever was selected in "ADVANCED."

BIT RATE


BIT RATE
384kbps
Audio
0 5 10
Mbps
Video

Bit rate refers to the amount of video/audio data per second in a disc. The higher the bit rate, the larger the amount of data. When the bit rate level is high, there is a large amount of data. However, this does not always mean that you can get higher quality pictures or sounds.

LAYER

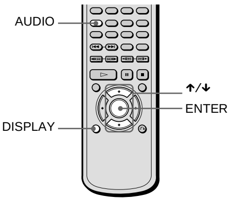

Appears when the DVD has dual layers
Layer 1

Indicates the approximate point where the disc is playing.
If it is a dual-layer DVD, the player indicates which layer is being read ("Layer 0" or "Layer 1").
For details on the layers, see page 92 (DVD VIDEO).

Changing the Sound

DVD VIDEO DVD-RW VIDEO CD CD

If the DVD VIDEO is recorded with multilingual tracks, you can select the language you want while playing the DVD VIDEO.
If the DVD VIDEO is recorded in multiple audio formats (PCM, Dolby Digital, or DTS), you can select the audio format you want while playing the DVD VIDEO.
With stereo CDs or VIDEO CDs, you can select the sound from the right or left channel and listen to the sound of the selected channel through both the right and left speakers. (In this case, the sound loses its stereo effect.) For example, when playing a disc containing a song with the vocals on the right channel and the instruments on the left channel, you can select the left channel and hear the instruments from both speakers.

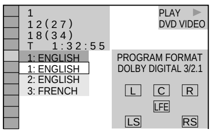

AUDIO
↑/↓
ENTER
DISPLAY

1 Press DISPLAY during playback.

The Control Menu is displayed.

2 Press ↑/↓ to select (AUDIO), then press ENTER.

The options for "AUDIO" appear.


1
12(27)
18(34)
T 1:32:55
PLAY
DVD VIDEO
1: ENGLISH
1: ENGLISH
2: ENGLISH
3: FRENCH
PROGRAM FORMAT
DOLBY DIGITAL 3/2.1
L C R
LFE
LS RS

3 Press ↑/↓ to select the desired audio signal.

■ When playing a DVD VIDEO

Depending on the DVD VIDEO, the choice of language varies.
When 4 digits are displayed, they represent the language code. Refer to the language code list on page 97 to see which language the code represents.
When the same language is displayed two or more times, the DVD VIDEO is recorded in multiple audio formats.

■ When playing a DVD-RW

The types of sound tracks recorded on a disc are displayed. The default setting is underlined.
Example:

- 1: MAIN (main sound)
- 1: SUB (sub sound)
- 1: MAIN+SUB (main and sub sound)

■ When playing a VIDEO CD or CD

The default setting is underlined.

- STEREO: The standard stereo sound
- 1/L: The sound of the left channel (monaural)
- 2/R: The sound of the right channel (monaural)

4 Press ENTER.

To turn off the Control Menu

Press DISPLAY repeatedly until the Control Menu is turned off.

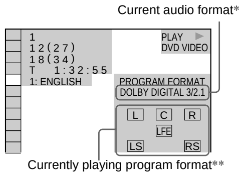
You can select "AUDIO" directly by pressing AUDIO. Each time you press the button, the item changes.

Notes

- While playing a DVD, the sound may change automatically.
- You cannot change the sound for SACDs.

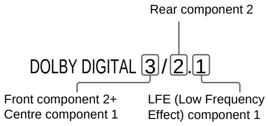
Displaying the audio information of the disc DVD VIDEO

When you select "AUDIO," the channels being played are displayed on the screen. For example, in Dolby Digital format, multiple signals ranging from monaural to 5.1 channel signals can be recorded on a DVD. Depending on the DVD, the number of the recorded channels may differ.


Current audio format*
1
12(27)
18(34)
T 1:32:55
PLAY
DVD VIDEO
1: ENGLISH
PROGRAM FORMAT
DOLBY DIGITAL 3/2.1
L C R
LFE
LS RS
Currently playing program format**

* "PCM," "DTS," or "DOLBY DIGITAL" is displayed.
In the case of "DOLBY DIGITAL," the channels in the playing track are displayed by numbers as follows:

For Dolby Digital 5.1 ch:

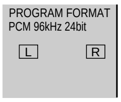

Rear component 2
DOLBY DIGITAL 3/2.1
Front component 2+
Centre component 1
LFE (Low Frequency Effect) component 1

**The letters in the program format display mean the following sound component.

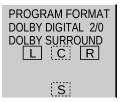
L:	Front (left)
R:	Front (right)
C:	Center
LS:	Rear (left)
RS:	Rear (right)
S:	Rear (monaural): The rear component of the Dolby Surround processed signal and the Dolby Digital signal
LFE:	Low Frequency Effect signal

The display examples are as follows:

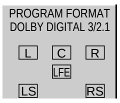
- PCM (stereo)


PROGRAM FORMAT
PCM 96kHz 24bit
L R

- Dolby Surround

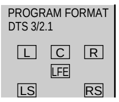

PROGRAM FORMAT
DOLBY DIGITAL 2/0
DOLBY SURROUND
L C R
S

- Dolby Digital 5.1ch
  When an LFE signal component is output, "LFE" is enclosed in a solid line. When an LFE signal component is not output, "LFE" is enclosed in a broken line.


PROGRAM FORMAT
DOLBY DIGITAL 3/2.1
L C R
LFE
LS RS

continued ➡

- DTS
  When an LFE signal component is output, "LFE" is enclosed in a solid line. When an LFE signal component is not output, "LFE" is enclosed in a broken line.

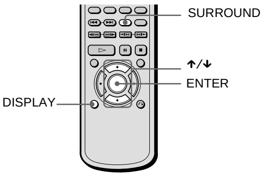


💡 When the signal contains rear signal components such as "LS," "RS" or "S," the Surround effect is enhanced (page 58).

SURROUND Mode Settings

DVD VIDEO DVD-RW VIDEO CD CD

You can enjoy surround sounds while playing discs including Dolby Digital and DTS DVDs, even if you have only 2 or 4 speakers. Select surround mode that best suits your speaker setup.

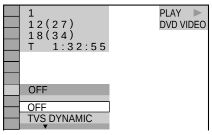


1 Press DISPLAY during playback.

The Control Menu appears.

2 Press ↑/↓ to select (SURROUND), then press ENTER.

The options for "SURROUND" appear.



3 Press ↑/↓ to select one of the surround modes.

Refer to the following explanations given for each item.

For 2 speaker setups
- TVS DYNAMIC
- TVS WIDE
- TVS NIGHT
- TVS STANDARD

For 4 to 6 speaker setups
(If you select "NONE" in the setting of "REAR" in "SPEAKER SETUP" (page 86), you cannot select these modes.)
- NORMAL SURROUND
- ENHANCED SURROUND
- VIRTUAL REAR SHIFT
- VIRTUAL MULTI REAR
- VIRTUAL MULTI DIMENSION

4 Press ENTER.

To cancel the setting

Select "OFF" in Step 3.

To turn off the Control Menu

Press DISPLAY repeatedly until the Control Menu is turned off.

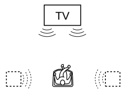
For 2 speaker setups

When you connect only 2 front speakers, TVS (TV Virtual Surround) lets you enjoy surround sound effects by using sound imaging to create virtual rear speakers from the sound of the front speakers (L: left, R: right) without using actual rear speakers. Select one of the following modes:

If the player is set up to output the signal from the DIGITAL OUT (OPTICAL or COAXIAL) jack, the surround effect will be heard only when "DOLBY DIGITAL" and "DTS" are set to "D-PCM" in "AUDIO SETUP" (page 84).

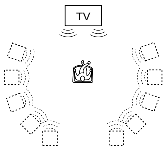
TVS DYNAMIC

Uses sound imaging to create virtual rear speakers from the sound of the front speakers (L, R) without using actual rear speakers. The virtual speakers are reproduced as shown in the illustration below. The sound imaging effect is distinct and clearly reproduces each aural element of the audio track.
This mode is effective when the distance between the front L and R speakers is short, such as with built-in speakers on a stereo TV.



TVS WIDE

Uses sound imaging to create virtual rear speakers from the sound of the front speakers (L, R) without using actual rear speakers. The virtual speakers are reproduced as shown in the illustration below. This gives the sound an expanded effect that fills the area surrounding the listener.
This mode is effective when the distance between the front L and R speakers is short, such as with built-in speakers on a stereo TV.



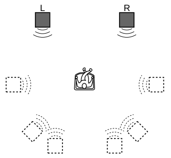
TVS NIGHT

The large sounds, such as explosions, are suppressed, but the quieter sounds are unaffected. This feature is useful when you don't want to disturb other people but still want to hear the dialog and enjoy the surround sound effects of "TVS WIDE."

continued ➡

TVS STANDARD

Uses sound imaging to create virtual rear speakers from the sound of the front speakers (L, R) without using actual rear speakers. The virtual speakers are reproduced as shown in the illustration below. Use this setting when you want to use TVS with 2 separate speakers and retain the sound quality.



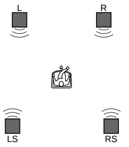
L: Left front speaker
R: Right front speaker
⬚: Virtual speakers

For 4 to 6 speaker setups

You can enjoy the following surround effects by using the 2 front speakers and 2 rear speakers.
Connect the player to the amplifier (receiver) with the B-1 connection (page 22).
You can experience Dolby Surround (Pro Logic) sounds or Digital Cinema Sound (DCS). DCS uses sound imaging to shift the sound of the rear speakers away from the actual speaker position or create entire sets of virtual rear speakers from one set of actual rear speakers. "VIRTUAL REAR SHIFT," "VIRTUAL MULTI REAR," and "VIRTUAL MULTI DIMENSION" make use of this technology.

NORMAL SURROUND

Software with 2 channel audio signals is decoded with the Dolby Surround (Pro Logic) decoder to create surround effects. The rear speakers will emit identical monaural sounds. If you are using a center speaker, the appropriate sounds for the center speaker will be delivered.

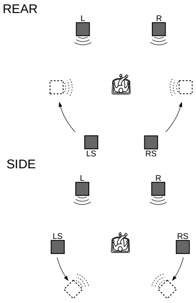


ENHANCED SURROUND

Provides a greater sense of presence from a Dolby Surround (Pro Logic) source with a monaural rear channel signal. Produces a stereo like effect in the rear channels.

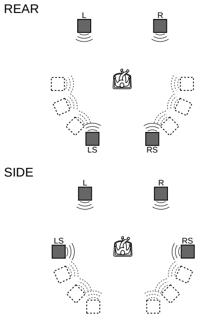
VIRTUAL REAR SHIFT

Uses sound imaging to shift the sound of the rear speakers away from the actual speaker position.
The virtual speakers are reproduced as shown in the illustration below. The shift position differs according to "REAR" or "SIDE" setting of the rear speakers (page 86).



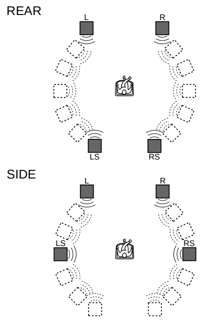
VIRTUAL MULTI REAR

Uses sound imaging to create an array of virtual rear speakers from a single pair of actual rear speakers. The virtual speakers are reproduced as shown in the illustration below. The position of the virtual rear speakers differs according to "REAR" or "SIDE" setting of the rear speakers (page 86).



VIRTUAL MULTI DIMENSION

Uses sound imaging to create an array of virtual rear speaker positions higher than the listener from a single pair of actual rear speakers.
This mode creates five sets of virtual speakers surrounding the listener at approximately a 30° angle of elevation. The effect differs according to "REAR" or "SIDE" setting of the rear speakers (page 86).



L: Left front speaker
R: Right front speaker
LS: Left rear speaker
RS: Right rear speaker
⬚: Virtual speakers

💡 You can select "SURROUND" directly by pressing SURROUND. Each time you press the button, the item changes. If you select any setting other than "OFF," the SURROUND indicator on the player lights up.

Notes
- To enjoy the multichannel audio through the 5.1CH OUTPUT jacks, correctly set each speaker position and distance. For details on setting each speaker, see page 86.
- When you select an item, the sound cuts off for a moment.
- When the playing signal does not contain a signal for the rear speakers (page 57), the surround effects may be difficult to hear.
- When you select "TVS DYNAMIC," "TVS WIDE," "TVS NIGHT," or "TVS STANDARD," the player does not output the sound from the center speaker.
- When you select one of the surround modes, turn off the surround setting of the connected TV or amplifier (receiver).

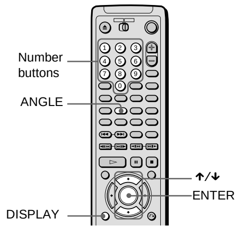
continued ➡

- If the player is set up to output the signal from the DIGITAL OUT (OPTICAL or COAXIAL) jack, the TVS effect will not be heard when you play a CD.
- Make sure that your listening position is between and at an equal distance from your speakers, and that the speakers are located in similar surroundings. Otherwise, the TVS effect may be hard to discern.
- "TVS NIGHT" only works with Dolby Digital discs. However, not all discs will respond to the "TVS NIGHT" function in the same way.
- If you use the DIGITAL OUT (OPTICAL or COAXIAL) jack and set "DOLBY DIGITAL" to "DOLBY DIGITAL," and "DTS" to "DTS," in "AUDIO SETUP," sound will come from your speakers but it will not have the TVS effect.

Changing the Angles

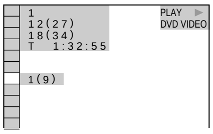
DVD VIDEO

If various angles (multi-angles) for a scene are recorded on the DVD VIDEO, "ANGLE" appears in the front panel display. This means that you can change the viewing angle.
For example, while playing a scene of a train in motion, you can display the view from either the front of the train, the left window of the train or from the right window without having the train's movement interrupted.

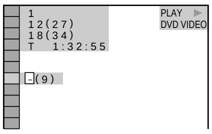


1 Press DISPLAY during playback.
The Control Menu appears.

2 Press ↑/↓ to select (ANGLE).
The number of the angle appears.
The number in parentheses indicates the total number of angles.



3 Press → or ENTER.
The number of the angle changes to "-."



4 Select the angle number using the number buttons or ↑/↓, then press ENTER.
The angle changes to the selected angle.

To turn off the Control Menu

Press DISPLAY repeatedly until the Control Menu is turned off.

💡 You can select the angle directly by pressing ANGLE. Each time you press the button, the angle changes.

💡 You can display all the angles recorded on the disc on the same screen, and start playback directly in continuous mode from the chosen angle. The angles are displayed on a screen divided into 9 sections. For details, see page 50.

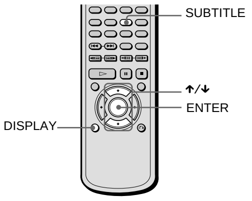
Note

Depending on the DVD VIDEO, you may not be able to change the angles even if multi-angles are recorded on the DVD VIDEO.

Displaying the Subtitles

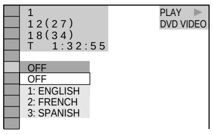
DVD VIDEO **DVD-RW**

If subtitles are recorded on the disc, you can turn the subtitles on and off whenever you want while playing. If multilingual subtitles are recorded on the disc, you can change the subtitle language while playing, and turn it on or off whenever you want. For example, you can select the language you want to practice and turn the subtitles on for better understanding.



1 Press DISPLAY during playback.
The Control Menu appears.

2 Press ↑/↓ to select (SUBTITLE), then press ENTER.
The options for "SUBTITLE" appear.



3 Press ↑/↓ to select the setting.

■ **When playing a DVD VIDEO**
Select the language.
Depending on the DVD VIDEO, the choice of language varies.
When 4 digits are displayed, they indicate the language code. Refer to "Language Code List" on page 97 to see which language the code represents.

■ **When playing a DVD-RW**
Select "ON."

4 Press ENTER.

To cancel the SUBTITLE setting

Select "OFF" in Step 3.

To turn off the Control Menu

Press DISPLAY repeatedly until the Control Menu is turned off.

💡 You can select "SUBTITLE" directly by pressing SUBTITLE. Each time you press the button, the item changes.

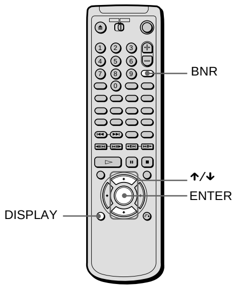
Note

Depending on the DVD VIDEO, you may not be able to change the subtitles even if multilingual subtitles are recorded on it.

Adjusting the Picture Quality (BNR)

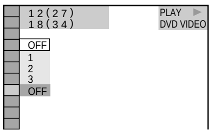
DVD VIDEO **DVD-RW** **VIDEO CD**

The Block Noise Reduction (BNR) function adjusts the picture quality by reducing the "block noise" or mosaic like patterns that appear on your TV screen.



1 Press DISPLAY twice during playback.
The Control Menu appears.

2 Press ↑/↓ to select BNR (BNR), then press ENTER.
The options for "BNR" appear.



3 Press ↑/↓ to select a level.
As the value increases, the mosaic like patterns on your TV screen will decrease.
- 1: reduces the "block noise".
- 2: reduces the "block noise" more than 1.
- 3: reduces the "block noise" more than 2.

4 Press ENTER.
The disc plays with the setting you selected.

To cancel the "BNR" setting

Select "OFF" in Step 3.

To turn off the Control Menu

Press DISPLAY repeatedly until the Control Menu is turned off.

💡 You can select "BNR" directly by pressing BNR. Each time you press the button, the item changes. If you select any setting other than "OFF," the indicator on the player lights up.

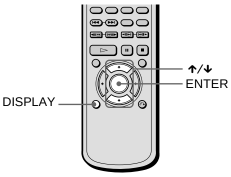
Notes

- If the outlines of the images on your screen should become blurred, set "BNR" to "OFF."
- Depending on the disc or the scene being played, the "BNR" effect may be hard to discern.

Adjusting the Playback Picture (VIDEO EQUALIZER)

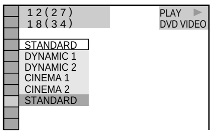
DVD VIDEO **DVD-RW** **VIDEO CD**

You can adjust the video signal of the DVD or VIDEO CD from the player, not from the TV, to obtain the picture quality you want. Choose the video mode that suits the program you are watching.



1 **Press DISPLAY twice during playback.**
The Control Menu appears.

2 **Press ↑/↓ to select (VIDEO EQUALIZER), then press ENTER.**
The options for “VIDEO EQUALIZER” appear.



3 **Press ↑/↓ to select the setting you want.**

- STANDARD: displays a standard picture.
- DYNAMIC 1: produces a bold dynamic picture by increasing the picture contrast and the color intensity.
- DYNAMIC 2: produces a more dynamic picture than DYNAMIC 1 by further increasing the picture contrast and the color intensity.
- CINEMA 1: enhances details in dark areas by increasing the black level.
- CINEMA 2: White colors become brighter and black colors become richer, and the color contrast is increased.

4 **Press ENTER.**

To turn off the Control Menu

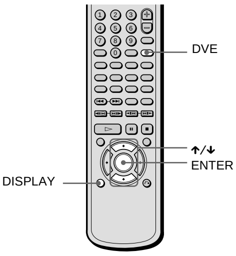
Press DISPLAY repeatedly until the Control Menu is turned off.

💡 When you watch a movie, “CINEMA 1” or “CINEMA 2” is recommended.

Enhancing the Playback Picture (DIGITAL VIDEO ENHANCER)

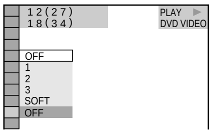
DVD VIDEO **DVD-RW** **VIDEO CD**

The Digital Video Enhancer function makes the picture appear clear and crisp by enhancing the outlines of images on your TV screen. Also, this function can soften the images on the screen.



1 **Press DISPLAY twice during playback.**
The Control Menu appears.

2 **Press ↑/↓ to select (DIGITAL VIDEO ENHANCER), then press ENTER.**
The options for “DIGITAL VIDEO ENHANCER” appear.



3 **Press ↑/↓ to select a level.**
As the value increases, the outlines of images on your TV screen will become crisper.

- 1: enhances the outline.
- 2: enhances the outline more than 1.
- 3: enhances the outline more than 2.
- SOFT: softens the image (DVD VIDEO/DVD-RW only).

4 **Press ENTER.**
The disc plays with the setting you selected.

To cancel the “DIGITAL VIDEO ENHANCER” setting

Select “OFF” in Step 3.

To turn off the Control Menu

Press DISPLAY repeatedly until the Control Menu is turned off.

💡 You can select “DIGITAL VIDEO ENHANCER” directly by pressing DVE. Each time you pressing the button, the item changes.

Note

Depending on the DVD/VIDEO CD disc or the scene being played, noise found in the disc may become more apparent. If this happens, it is recommended that you use the BNR function (page 65) with the DVE function. If the condition still does not improve, reduce the Digital Video Enhancer level or select “SOFT” (DVD VIDEO/DVD-RW only) in Step 3 above.

Locking Discs (Custom Parental Control, Parental Control)

You can set two kinds of playback restrictions for the desired disc.

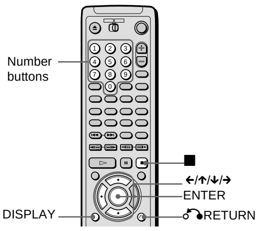
- Custom Parental Control
  You can set the playback restrictions so that the player will not play inappropriate discs.
- Parental Control
  Playback of some DVD VIDEOs can be limited according to a predetermined level such as the age of the users.

The same password is used for both Parental Control and Custom Parental Control.

Custom Parental Control

DVD VIDEO **VIDEO CD** **SACD** **CD**

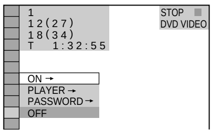
You can set the same Custom Parental Control password for up to 50 discs. When you set the fifty-first disc, the first disc is canceled.



1 **Insert the disc you want to lock.**
If the disc is playing, press ■ to stop playback.

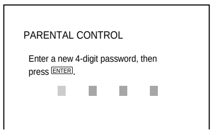
2 **Press DISPLAY while the player is in stop mode.**
The Control Menu appears.

3 **Press ↑/↓ to select (PARENTAL CONTROL), then press ENTER.**
The options for “PARENTAL CONTROL” appear.



4 **Press ↑/↓ to select “ON →,” then press ENTER.**

■ If you have not entered a password
The display for registering a new password appears.

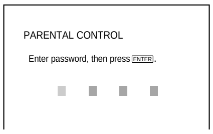


PARENTAL CONTROL

Enter a new 4-digit password, then press ENTER.

Enter a 4-digit password by using the number buttons, then press ENTER.
The display for confirming the password appears.

■ When you have already registered a password
The display for entering the password appears.



PARENTAL CONTROL

Enter password, then press ENTER.

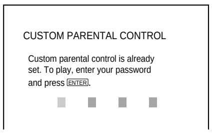
5 **Enter or re-enter your 4-digit password by using the number buttons, then press ENTER.**
“Custom parental control is set.” appears and then the screen returns to the Control Menu display.

To turn off the Custom Parental Control function

1. Follow Steps 1 through 3 of “Custom Parental Control.”
2. Press ↑/↓ to select “OFF →,” then press ENTER.
3. Enter your 4-digit password using the number buttons, then press ENTER.

To play the disc for which Custom Parental Control is set

1. Insert the disc for which Custom Parental Control is set.
   The “CUSTOM PARENTAL CONTROL” display appears.



CUSTOM PARENTAL CONTROL

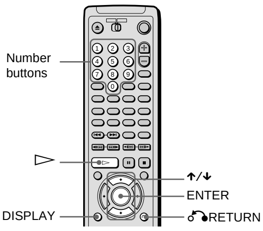
Custom parental control is already set. To play, enter your password and press ENTER.

2. Enter your 4-digit password using the number buttons, then press ENTER.
   The player is ready for playback.

💡 If you forget your password, enter the 6-digit number “199703” using the number buttons when the “CUSTOM PARENTAL CONTROL” display asks you for your password, then press ENTER. The display will ask you to enter a new 4-digit password.

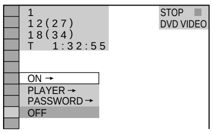
Parental Control (limiting playback by children) DVD VIDEO

Playback of some DVD VIDEOs can be limited according to a predetermined level such as the age of the users. The “PARENTAL CONTROL” function allows you to set a playback limitation level.
A scene that is limited is not played, or it is replaced by a different scene.



1 **Press DISPLAY while the player is in stop mode.**
The Control Menu appears.

2 **Press ↑/↓ to select (PARENTAL CONTROL), then press ENTER.**
The options for “PARENTAL CONTROL” appear.

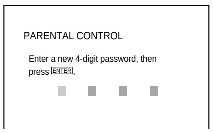


continued ➡

3 Press ↑/↓ to select "PLAYER →," then press ENTER.

■ If you have not entered a password

The display for registering a new password appears.


PARENTAL CONTROL

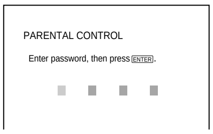
Enter a new 4-digit password, then press ENTER.

■ ■ ■ ■

Enter a 4-digit password using the number buttons, then press ENTER.
The display for confirming the password appears.

■ When you have already registered a password

The display for entering the password appears.

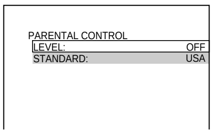

PARENTAL CONTROL

Enter password, then press ENTER.

■ ■ ■ ■

4 Enter or re-enter your 4-digit password by using the number buttons, then press ENTER.

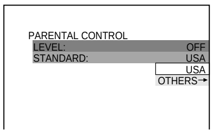
The display for setting the playback limitation level appears.


PARENTAL CONTROL

LEVEL:	OFF
STANDARD:	USA

5 Press ↑/↓ to select "STANDARD," then press ENTER.

The selection items for "STANDARD" are displayed.


PARENTAL CONTROL

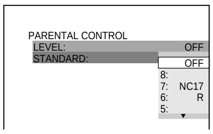
LEVEL:	OFF
STANDARD:	USA
	USA
	OTHERS→

6 Press ↑/↓ to select a geographic area as the playback limitation level, then press ENTER.

The area is selected.
When you select "OTHERS →," select and enter the standard code in the table on page 71 using the number buttons.

7 Press ↑/↓ to select "LEVEL," then press ENTER.

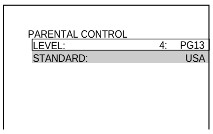
The selection items for "LEVEL" are displayed.


PARENTAL CONTROL

LEVEL:	OFF
STANDARD:	OFF
	8:
	7: NC17
	6: R
	5:
	▼

8 Select the level you want using ↑/↓, then press ENTER.

Parental Control setting is complete.


PARENTAL CONTROL

LEVEL:	4: PG13
STANDARD:	USA

The lower the value, the more strict the limitation.

To turn off the Parental Control function

Set "LEVEL" to "OFF" in Step 8.

To play a disc for which Parental Control is set

1 Insert the disc and press ▷.
The "PARENTAL CONTROL" display appears.

2 Enter your 4-digit password using the number buttons, then press ENTER.
The player starts playback.

💡 If you forget your password, remove the disc and repeat Steps 1 to 3 of "Limiting playback by children." When you are asked to enter your password, enter "199703" using the number buttons, then press ENTER. The display will ask you to enter a new 4-digit password. After you enter a new 4-digit password in Step 4, replace the disc in the player and press ▷. When the "PARENTAL CONTROL" display appears, enter your new password.

Notes

- When you play DVD VIDEOs which do not have the Parental Control function, playback cannot be limited on this player.
- Depending on the DVD VIDEO, you may be asked to change the parental control level while playing the disc. In this case, enter your password, then change the level. If the Resume Play mode is canceled, the level returns to the original level.

Area Code

Standard	Code number	Standard	Code number
Argentina	2044	Korea	2304
Australia	2047	Malaysia	2363
Austria	2046	Mexico	2362
Belgium	2057	Netherlands	2376
Brazil	2070	New Zealand	2390
Canada	2079	Norway	2379
Chile	2090	Pakistan	2427
China	2092	Philippines	2424
Denmark	2115	Portugal	2436
Finland	2165	Russia	2489
France	2174	Singapore	2501
Germany	2109	Spain	2149
Hong Kong	2219	Sweden	2499
India	2248	Switzerland	2086
Indonesia	2238	Taiwan	2543
Italy	2254	Thailand	2528
Japan	2276	United Kingdom	2184

continued ➡

Changing the password

DVD VIDEO VIDEO CD SACD CD

1 Press DISPLAY while the player is in stop mode.

The Control Menu appears.

2 Press ↑/↓ to select (PARENTAL CONTROL), then press ENTER.

The options for "PARENTAL CONTROL" appear.

3 Press ↑/↓ to select "PASSWORD →," then press ENTER.

The display for entering the password appears.

4 Enter your 4-digit password using the number buttons, then press ENTER.

5 Enter a new 4-digit password using the number buttons, then press ENTER.

6 To confirm your password, re-enter it using the number buttons, then press ENTER.

If you make a mistake entering your password

Press ← before you press ENTER in Step 5 and input the correct number.

If you make a mistake

Press ↶RETURN.

To turn off the Control Menu

Press DISPLAY repeatedly until the Control Menu is turned off.

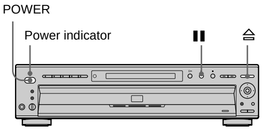
Operation Sound Effects

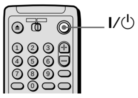
(Sound Feedback)

The player beeps when the following operations are performed.
The default setting of the Sound Feedback function is set to off.

Operation	Operation sound
Power is turned on	One beep
Power is turned off	Two beeps
▷ is pressed	One beep
❚❚ is pressed	Two beeps
Playback is stopped	One long beep
Operation is not possible	Three beeps

To set Sound Feedback





1 Press POWER on the player, then press I/⏻ on the remote.

The power indicator lights up in green.
When there is a disc in the player, press ≜ and remove the disc. Then press ≜ again to close the disc tray.

2 Press and hold ❚❚ on the player for more than two seconds.

You will hear one beep and the Sound Feedback function is turned on.

To turn off the Sound Feedback function

When there is no disc in the player, press and hold ❚❚ on the player for more than two seconds. You will hear two beeps and the Sound Feedback function is turned off.

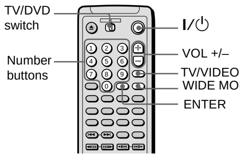
Controlling Your TV or AV Amplifier (Receiver) with the Supplied Remote

By adjusting the remote signal, you can control your TV with the supplied remote.
If you connect the player with an AV amplifier (receiver), you can control the volume with the supplied remote.

Notes

- Depending on the units being connected, you may not be able to control your TV or AV amplifier (receiver) using some of the buttons below.
- If you enter a new code number, the code number previously entered will be erased.
- When you replace the batteries of the remote, the code number you have set may be reset to the default setting. Set the appropriate code number again.

Controlling TVs with the remote



1 Slide the TV/DVD switch to "TV."

2 Hold down I/⏻, and enter your TV's manufacturer's code (see the table) using the number buttons.

3 Release I/⏻.

continued ➡

Code numbers of controllable TVs

If more than one code number is listed, try entering them one at a time until you find the one that works with your TV.

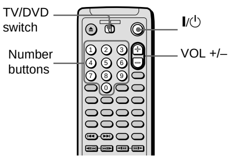
Manufacturer	Code number	Manufacturer	Code number
Sony (default)	01	Panasonic	06,19
Akai	04	Philco	03,04
AOC	04	Philips	08,21
Centurion	12	Pioneer	16
Coronado	03	Portland	03
Curtis-Mathes	12	Quasar	06,18
Daytron	12	Radio Shack	05,14
Emerson	03,04,14	RCA	04,10
Fisher	11	Sampo	12
General Electric	06,10	Samsung	20
Gold Star	03,04,17	Sanyo	11
Hitachi	02,03	Scott	12
J.C.Penney	04,12	Sears	07,10,11
JVC	09	Sharp	03,05,18
KMC	03	Sylvania	08,12
Magnavox	03,08,12	Teknika	03,08,14
Marantz	04,13	Toshiba	07
MGA/ Mitsubishi	04,12,13, 17	Wards	03,04,12
NEC	04,12	Yorx	12
		Zenith	15

Controlling the TV

When you set the TV/DVD switch to TV, you can control the following items with the supplied remote.

By pressing	You can
I/⏻	Turn the TV on or off
VOL +/–	Adjust the volume of the TV
WIDE MODE	Switch to or from the wide mode of a Sony Wide TV
TV/VIDEO	Switch the TV's input source between the TV and other input sources
Number buttons and ENTER	Select the channel of the TV

Controlling the volume of your AV amplifier (receiver) with the remote



1 **Slide the TV/DVD switch to DVD.**

2 **Hold down I/⏻, and enter your AV amplifier (receiver)'s manufacturer's code (see the table below) using the number buttons.**

3 **Release I/⏻.**

Code numbers of controllable AV amplifiers (receivers)

If more than one code number is listed, try entering them one at a time until you find the one that works with your AV amplifier (receiver).

If you do not connect an AV amplifier (receiver), you can control your TV's volume by setting the code number to 90 (default). However, you must first set the code number of controllable TVs as explained above.

Manufacturer	Code number
Sony	80, 88, 89, 91
Denon	84, 85, 86
Kenwood	92, 93
Onkyo	81, 82, 83
Pioneer	99
Sansui	87
Technics	97, 98
Yamaha	94, 95, 96

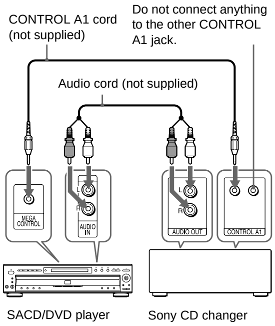
Controlling the AV amplifiers (receivers)

When you set the TV/DVD switch to DVD, you can control the volume of the AV amplifier (receiver) using VOL +/–.

Controlling a CD Changer (Mega Control)

You can control a Sony CD changer of 5/50/200/300/400 discs connected to the MEGA CONTROL jack of the player.

Connecting the CD changer

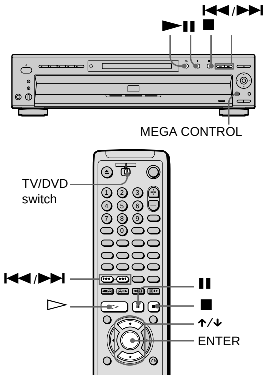

CONTROL A1 cord (not supplied)
Do not connect anything to the other CONTROL A1 jack.
Audio cord (not supplied)
MEGA CONTROL
L
R
AUDIO IN
L
R
AUDIO OUT
CONTROL A1

SACD/DVD player

Sony CD changer (5/50/200/300/400 discs)

Controlling the CD changer

The controls indicated below are effective while the MEGA CONTROL button is lit.



1 **Set the command mode selector of the CD changer to "CD3."**

2 **Set the TV/DVD switch on the remote to "DVD."**

3 **Turn on the player and the CD changer.**

4 **Press MEGA CONTROL on the player.**
The MEGA CONTROL button on the front panel lights up and the display shows the current disc number in the CD changer.

5 **Select the play mode you want on the CD changer.**

continued ➡

6 **Press ▷ on the player to start playing.**
Playback starts and the display shows the current disc and track numbers and the playing time of the track. While the MEGA CONTROL button on the front panel is lit, you can control CD changer with the controls on the player as follows:

To	Operation
Select a disc during playback	Press the number button on the remote and ENTER, or ↑/↓ and ENTER
Stop	Press ■
Pause	Press ❚❚
Resume play after pause	Press ❚❚ or ▷
Go to the next track or scene in continuous play mode	Press ▶▶|
Go back to the preceding track or scene in continuous play mode	Press |◀◀

To control the player again

Press MEGA CONTROL on the player. The MEGA CONTROL button on the player turns off and you can control the player.

Notes

- Connect only a Sony 5/50/200/300/400 CD changer to MEGA CONTROL jack.
- Set CONTROL A1 or CONTROL A1II in the setup menu of the CD changer so that it matches the connection made above. Refer to the operating instructions supplied with the CD changer.
- You cannot locate a particular point on a CD's track using the controls on the player.
- Depending on the CD changer, some controls on the player may not operate the CD changer as they do the player.
- You cannot control the player when the MEGA CONTROL button on the front panel is lit.
- The player will not enter Resume Play after the MEGA CONTROL button on the front panel has been turned on and off.
- You cannot control the CD changer right after turning on the player or connecting the CD changer. Wait a few seconds until the player recognizes the CDs.
- When the MEGA CONTROL button is lit, you cannot use the Control Menu.

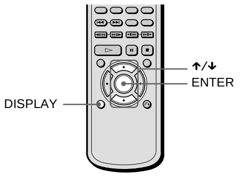
Using the Setup Display

By using the Setup Display, you can make various adjustments to items such as picture and sound. You can also set a language for the subtitles and the Setup Display, among other things. For details on each Setup Display item see page 78 through 88. For an overall list of Setup Display items, see page 98.

Note

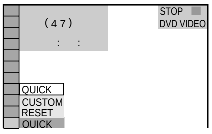
Playback settings stored in the disc take priority over the Setup Display settings and not all the functions described may work.

How to use the Setup Display

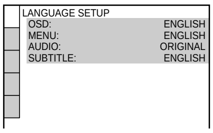


1 **Press DISPLAY on the remote when the player is in stop mode.**
The Control Menu appears.

2 **Press ↑/↓ to select (SETUP) and press ENTER.**
The options for "SETUP" appear.



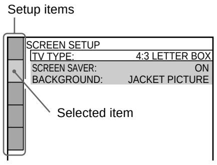
3 **Press ↑/↓ to select "CUSTOM" and press ENTER.**
The Setup Display appears.



LANGUAGE SETUP

OSD:	ENGLISH
MENU:	ENGLISH
AUDIO:	ORIGINAL
SUBTITLE:	ENGLISH

4 **Press ↑/↓ to select the setup item from the displayed list: "LANGUAGE SETUP," "SCREEN SETUP," "CUSTOM SETUP," "AUDIO SETUP" or "SPEAKER SETUP." Then press ENTER.**
The selected setup item appears.
Example: "SCREEN SETUP"



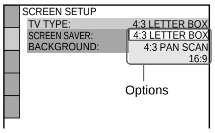
SCREEN SETUP

TV TYPE:	4:3 LETTER BOX
SCREEN SAVER:	ON
BACKGROUND:	JACKET PICTURE

continued ➡

5 Select an item using ↑/↓, then press ENTER.

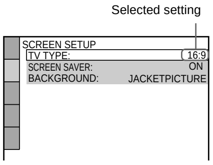
The options for the selected item appear.
Example: "TV TYPE"



SCREEN SETUP
TV TYPE: 4:3 LETTER BOX
SCREEN SAVER: 4:3 LETTER BOX
BACKGROUND: 4:3 PAN SCAN
16:9

6 Select a setting using ↑/↓, then press ENTER.

The setting is selected and setup is complete.
Example: "16:9"



SCREEN SETUP
TV TYPE: 16:9
SCREEN SAVER: ON
BACKGROUND: JACKETPICTURE

To turn off the Setup Display

Press DISPLAY repeatedly until the Setup Display is turned off.

💡 If you select "QUICK" in Step 3, you will enter the Quick Setup mode (page 28).
Follow from Step 5 of the Quick Setup explanation to make basic adjustments.

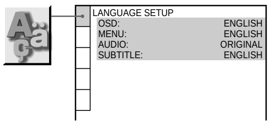
💡 If you select "RESET" in Step 3, you can reset all of the "SETUP" settings on page 98 to the default settings. After you select "RESET" and press ENTER, select "YES" and press ENTER to reset the settings (it takes a few seconds to complete), or select "NO" and press ENTER to return to the Control Menu. Do not press POWER or I/⏻ when resetting the player.

Setting the Display or Sound Track Language

(LANGUAGE SETUP)

"LANGUAGE SETUP" allows you to set various languages for the on-screen display or sound track.

Select "LANGUAGE SETUP" in the Setup Display. For details on using the display, see "Using the Setup Display" (page 77).



LANGUAGE SETUP
OSD: ENGLISH
MENU: ENGLISH
AUDIO: ORIGINAL
SUBTITLE: ENGLISH

■OSD (On-Screen Display)

Switches the display language on the screen. Selects the language from the displayed list.

■MENU (DVD VIDEO only)

You can select the desired language for the disc's menu.

■AUDIO (DVD VIDEO only)

Switches the language of the sound track. Select the language from the displayed list. When you select "ORIGINAL," the language given priority in the disc is selected.

■SUBTITLE (DVD VIDEO only)

Switches the language of the subtitles recorded on the DVD VIDEO.
Select the language from the displayed list. When you select "AUDIO FOLLOW," the language for the subtitles changes according to the language you selected for the sound track.

💡 If you select "OTHERS →" in "MENU," "SUBTITLE," and "AUDIO," select and enter the language code from the list using the number buttons (page 97).

Note

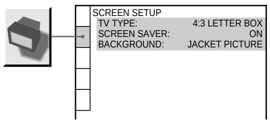
When you select a language that is not recorded on the DVD VIDEO, one of the recorded languages will be automatically selected (except for the "OSD").

Settings for the Display

(SCREEN SETUP)

Choose settings according to the TV to be connected.

Select "SCREEN SETUP" in the Setup Display. For details on using the display, see "Using the Setup Display" (page 77).
The default settings are underlined.



SCREEN SETUP
TV TYPE: 4:3 LETTER BOX
SCREEN SAVER: ON
BACKGROUND: JACKET PICTURE

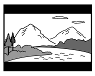
■TV TYPE

Selects the aspect ratio of the connected TV (4:3 standard or wide).

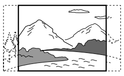
4:3 LETTER BOX	Select this when you connect a 4:3 screen TV. Displays a wide picture with bands on the upper and lower portions of the screen.
4:3 PAN SCAN	Select this when you connect a 4:3 screen TV. Automatically displays the wide picture on the entire screen and cuts off the portions that do not fit.
16:9	Select this when you connect a wide-screen TV or a TV with a wide mode function.

continued →

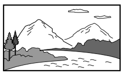
4:3 LETTER BOX



4:3 PAN SCAN



16:9



Note

Depending on the DVD, "4:3 LETTER BOX" may be selected automatically instead of "4:3 PAN SCAN" or vice versa.

■SCREEN SAVER

Turns on and off the screen saver so that the screen saver image appears when you leave the player in pause or stop mode for 15 minutes, or when you play back an SACD/CD for more than 15 minutes. The screen saver will help prevent your display device from becoming damaged (ghosting). Press ▷ to turn off the screen saver.

ON	Turns on the screen saver.
OFF	Turns off the screen saver.

■BACKGROUND

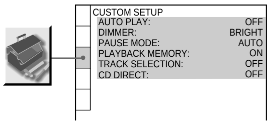
Selects the background color or picture on the TV screen in stop mode or while playing a SACD/CD.

JACKET PICTURE	The jacket picture (still picture) appears in the background, but only when the jacket picture is already recorded on the disc (CD-EXTRA, etc.). If the disc does not contain a jacket picture, the "GRAPHICS" picture appears.
GRAPHICS	A preset picture stored in the player appears in the background.
BLUE	The background color is blue.
BLACK	The background color is black.

Custom Settings (CUSTOM SETUP)

Use this to set up playback related and other settings.

Select "CUSTOM SETUP" in the Setup Display. For details on using the display, see "Using the Setup Display" (page 77).
The default settings are underlined.



CUSTOM SETUP
AUTO PLAY: OFF
DIMMER: BRIGHT
PAUSE MODE: AUTO
PLAYBACK MEMORY: ON
TRACK SELECTION: OFF
CD DIRECT: OFF

■AUTO PLAY

Selects the Auto Play setting when you turn on the player.

OFF	Does not use "TIMER," "DEMO1," or "DEMO2" to start playback.
TIMER	Starts playing when the player is turned on. The player can be played at any time when connected to a timer (not supplied). Set the timer when the player is in standby mode (the I/⏻ indicator lights up in red).
DEMO1	Starts playing the first demonstration automatically.
DEMO2	Starts playing the second demonstration automatically.

■DIMMER

Adjusts the lighting of the front panel display.

BRIGHT	Makes the front panel display bright.
DARK	Makes the front panel display dark.
OFF	Turns off the lighting of the front panel display.

■PAUSE MODE (DVD VIDEO/DVD-RW only)

Selects the picture in pause mode.

AUTO	The picture, including subjects that move dynamically, is output with no jitter. Normally, select this position.
FRAME	The picture, including subjects that do not move dynamically, is output in high resolution.

■PLAYBACK MEMORY (DVD VIDEO/ VIDEO CD only)

The player can store the "SUBTITLE" and other settings of each disc for up to 50 discs (Playback Memory).
Set the Playback Memory function "ON" or "OFF."

ON	Stores the settings in memory when you eject the disc.
OFF	Does not store the settings in memory.

The following settings are stored in memory by the Playback Memory function.
– ANGLE (page 63)*
– AUDIO (page 56)*
– BNR (page 65)
– DIGITAL VIDEO ENHANCER (page 67)
– SUBTITLE (page 64)*
– VIDEO EQUALIZER (page 66)

* DVD VIDEO only

continued →

Notes

- The player can store the settings of up to 50 discs. When you store the setting of disc number 51, the first disc setting is canceled.
- The Playback Memory function cannot be used for DVD-RWs in VR mode.
- During playback, do not turn off the player by pressing POWER on the player. Doing so may cancel the settings. When you turn off the player, press ■ first to stop playback and then press I/⏻ on the remote. After the power indicator lights up in red and the player enters standby mode, press POWER on the player.

■TRACK SELECTION (DVD VIDEO only)

Gives the sound track which contains the highest number of channels priority when you play a DVD on which multiple audio formats (PCM, DTS or Dolby Digital format) are recorded.

OFF	No priority given.
AUTO	Priority given.

Notes

- When you set the item to “AUTO,” the language may change. The “TRACK SELECTION” setting has higher priority than the “AUDIO” settings in “LANGUAGE SETUP” (page 78).
- If PCM, DTS and Dolby Digital sound tracks have the same number of channels, the player selects PCM, DTS and Dolby Digital sound tracks in this order.

■CD DIRECT

Eliminates the use of unnecessary circuits when playing CDs. The setting will be activated when you press DISC SKIP. This function affects the output of the following jacks:
–LINE OUT L/R (AUDIO) 1/2 jacks
–5.1CH OUTPUT jacks
–PHONES jack

OFF	Select this when playing CD discs, including CD type DTS discs.
ON	Eliminates the use of unnecessary circuits needed to play CDs.

Note

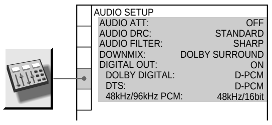
If you select “ON” when playing CD type DTS discs, the sound will become noisy.

Settings for the Sound

(AUDIO SETUP)

“AUDIO SETUP” allows you to set the sound according to the playback and connection conditions.

Select “AUDIO SETUP” in the Setup Display. For details on using the display, see “Using the Setup Display” (page 77).
The default settings are underlined.



```
AUDIO SETUP
  AUDIO ATT:                          OFF
  AUDIO DRC:                     STANDARD
  AUDIO FILTER:                     SHARP
  DOWNMIX:                DOLBY SURROUND
  DIGITAL OUT:                         ON
    DOLBY DIGITAL:                  D-PCM
    DTS:                            D-PCM
    48kHz/96kHz PCM:          48kHz/16bit
```

■AUDIO ATT (attenuation)

If the playback sound is distorted, set this item to “ON.” The player reduces the audio output level.
This function affects the output of the following jacks:
–LINE OUT L/R (AUDIO) 1/2 jacks
–5.1CH OUTPUT jacks
–PHONES jack

OFF	Turns off the audio attenuation. Normally, select this position.
ON	Reduces the audio output level so that no sound distortion occurs. Select this when the playback sound from the speakers is distorted.

■AUDIO DRC (Dynamic Range Control) (DVD VIDEO/DVD-RW only)

Makes the sound clear when the volume is turned down when playing a DVD that has the “AUDIO DRC” function. This affects the output from the following jacks:
–LINE OUT L/R (AUDIO) 1/2 jacks
–5.1CH OUTPUT jacks
–DIGITAL OUT (OPTICAL or COAXIAL) jack only when “DOLBY DIGITAL” is set to “D-PCM” in “DIGITAL OUT” (page 84).
–PHONES jack

STANDARD	Normally, select this position.
TV MODE	Makes the low sounds clear even if you turn the volume down. It is especially recommended when you listen to the sound using the speakers of the TV.
WIDE RANGE	Gives you the feeling of being at a live performance. When you use high quality speakers, it is even more effective.

■AUDIO FILTER (except SACD)

Selects the digital filter to reduce noises above the 22.05 kHz (Sampling frequency (Fs) of the audio sources is 44.1 kHz), 24 kHz (Fs is 48 kHz), or 48 kHz (Fs is above 96 kHz).

SHARP	Provides a wide frequency range and spatial feeling.
SLOW	Provides smooth and warm sound.

Notes

- There may be little effect by changing the digital filter depending on discs or playback environment.
- There is no effect on SACDs.

continued ➡

■DOWNMIX (DVD VIDEO/DVD-RW only)

Switches the mixing down methods when you play a DVD on which rear signal components such as “LS,” “RS,” or “S” are recorded in Dolby Digital or DTS format. For details on the rear signal components, see “Changing the Sound” (page 56). This function affects the output of the following jacks:
–LINE OUT L/R (AUDIO) jacks
–DIGITAL OUT (OPTICAL or COAXIAL) jack when “DOLBY DIGITAL” is set to “D-PCM” in “DIGITAL OUT” (page 84).
–PHONES jack

DOLBY SURROUND	Select this when the player is connected to an audio component that conforms to Dolby Surround (Pro Logic). The output signals which reproduce the Dolby Surround effect are downmixed to 2 channels.
NORMAL	Select this when the player is connected to an audio component that does not conform to Dolby Surround (Pro Logic). All of the output signals are downmixed to 2 channels without the Dolby Surround (Pro Logic) effect.

■DIGITAL OUT

Selects if audio signals are output via the DIGITAL OUT (OPTICAL or COAXIAL) jack.

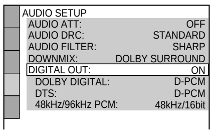
ON	Normally, select this position. When you select “ON,” set “DOLBY DIGITAL,” “DTS” and “48kHz/96kHz PCM.” For details on setting these items, see “Setting the digital output signal.”
OFF	The player does not output the audio signals via the DIGITAL OUT (OPTICAL or COAXIAL) jack. The influence of the digital circuit upon the analog circuit is minimal.

Note

SACD audio signals are not output from a digital jack.

Setting the digital output signal

Switches the method of outputting audio signals when you connect the following component using an optical or coaxial digital cord via the DIGITAL OUTPUT (OPTICAL or COAXIAL) jack.
–Amplifier (receiver) with digital input jack
–Amplifier (receiver) with a built-in DTS or Dolby Digital decoder
–MD or DAT deck
For connection details, see page 24.
Select “DOLBY DIGITAL,” “DTS” and “48kHz/96kHz PCM” after setting “DIGITAL OUT” to “ON.”



```
AUDIO SETUP
  AUDIO ATT:                          OFF
  AUDIO DRC:                     STANDARD
  AUDIO FILTER:                     SHARP
  DOWNMIX:                DOLBY SURROUND
  DIGITAL OUT:                         ON
    DOLBY DIGITAL:                  D-PCM
    DTS:                            D-PCM
    48kHz/96kHz PCM:          48kHz/16bit
```

■DOLBY DIGITAL (DVD VIDEO/DVD-RW only)

Selects the Dolby Digital signals output via the DIGITAL OUT (OPTICAL or COAXIAL) jack.

D-PCM	Select this when the player is connected to an audio component lacking a built-in Dolby Digital decoder. You can select whether the signals conform to Dolby Surround (Pro Logic) or not by making adjustments to the “DOWNMIX” item in “AUDIO SETUP” (page 84).
DOLBY DIGITAL	Select this when the player is connected to an audio component with a built-in Dolby Digital decoder. If the player is connected to an audio component lacking a built-in Dolby Digital decoder, do not set this. Otherwise, when you play the Dolby Digital sound track, a loud noise (or no sound) will come out from the speakers, affecting your ears or causing the speakers to be damaged.

■DTS (DVD VIDEO only)

Selects if DTS signals are output via the DIGITAL OUT (OPTICAL or COAXIAL) jack.

D-PCM	Select this when the player is connected to an audio component lacking a built-in DTS decoder. If you play DTS audio sound tracks, the player outputs stereo signals via the DIGITAL OUT (OPTICAL or COAXIAL) jack.
DTS	Select this when the player is connected to an audio component having a built-in DTS decoder. If the player is connected to an audio component lacking a built-in DTS decoder, do not set this. Otherwise, when you play the DTS sound track, a loud noise (or no sound) will come out from the speakers, affecting your ears or causing the speakers to be damaged.

■48kHz/96kHz PCM (DVD VIDEO only)

Selects the sampling frequency of the audio signal to be output via the DIGITAL OUT (OPTICAL or COAXIAL) jack.

48kHz/16bit	The audio signals of DVD VIDEOs are always converted to 48kHz/16bit.
96kHz/24bit	All types of signals including 96kHz/24bit are output in their original format. However, if the signal is encrypted for copyright protection purposes, the signal is only output as 48kHz/16bit. If a receiver (amplifier) which cannot accept 96kHz is connected to the player, do not set this. Otherwise, a loud noise may come out from the speakers.

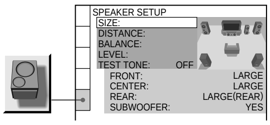
Notes

- Even if you set “48kHz/96kHz PCM” in “AUDIO SETUP” to “96kHz/24bit,” the sampling frequency is converted to 48kHz/16bit when a “SURROUND” mode (page 58) is selected.
- The analog audio signals from the LINE OUT L/R (AUDIO) 1/2 jacks and 5.1CH OUTPUT jacks are not affected by this setting and keep their original sampling frequency level.

Settings for the Speakers

(SPEAKER SETUP)

To obtain the best possible surround sound, set the size of the speakers you have connected and their distance from your listening position. Then use the test tone to adjust the volume and the balance of the speakers to the same level.
This setting is effective when connecting the speaker with 5.1CH OUTPUT jacks (page 22).
Select “SPEAKER SETUP” in the setup display. For details, see “Using the Setup Display” (page 77).
The default settings are underlined.



SPEAKER SETUP
SIZE:
DISTANCE:
BALANCE:
LEVEL:
TEST TONE: OFF
FRONT: LARGE
CENTER: LARGE
REAR: LARGE(REAR)
SUBWOOFER: YES

To return to the default setting

Select the item, then press CLEAR. Note that only the SIZE setting does not return to the default setting.

■SIZE

Selects the size of the speakers to be connected.

- FRONT

LARGE	Normally select this position.
SMALL	When the sound cracks or the surround sound effects are difficult to hear, select this. This activates the bass redirection circuitry and outputs the bass frequencies of the front speaker from the subwoofer.

- CENTER

NONE	If you do not connect a center speaker, select this.
LARGE	Normally select this position.
SMALL	When the sound cracks or the surround sound effects are difficult to hear, select this. This activates the bass redirection circuitry and outputs the bass frequencies of the center speaker from other speakers.

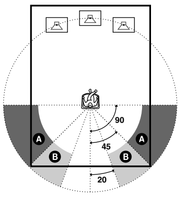
- REAR

NONE	If you do not connect rear speakers, select this.
LARGE	(REAR/SIDE): Normally select this position. Select either of these according to the rear speaker’s position*.
SMALL	(REAR/SIDE): When the sound cracks or the surround sound effects are difficult to hear, select this. Select either of these according to the rear speaker’s position*. This activates the bass redirection circuitry and outputs the bass frequencies of the rear speaker from other speakers.

* Rear speaker position
Correctly specify the location of the rear speakers to enjoy the surround effect.

- Set to the “SIDE,” if the location of the rear speakers corresponds to section Ⓐ below.
- Set to the “REAR,” if the location of the rear speakers corresponds to section Ⓑ below.

This setting affects only “VIRTUAL REAR SHIFT,” “VIRTUAL MULTI REAR,” and “VIRTUAL MULTI DIMENSION” mode (page 58).
These settings do not affect the SACD Multi audio signals.



- SUBWOOFER

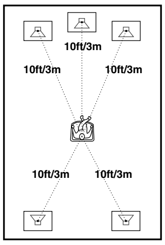
NONE	If you do not connect a subwoofer, select this. This activates the bass redirection circuitry and outputs the LFE signals from the front speakers as long as the front speaker size is set to “LARGE.”
YES	If you connect a subwoofer, select this to output the LFE (low frequency effect) channel from the subwoofer. When you set the other speakers settings to “SMALL,” the subwoofer makes up for the missing bass frequencies of the speakers.

Notes

- The cut off frequency for the subwoofer is fixed at 120 Hz.
- If your speakers are too small to reproduce low bass frequencies, please set all speaker settings to “SMALL” and utilize a subwoofer for low frequency sound.
- Even if there are fewer than 6 speakers connected, the player distributes the audio signal components to the front speakers.

■DISTANCE

In order to set the distance for each speaker, first set the distance from the listening position to the front speaker using FRONT. This will automatically set the same distance for the CENTER and REAR speakers. Then, starting from these settings, change the distance for the center and rear speakers as explained below so that they match the actual physical distance to your listening position. The default distance setting for the speakers in relation to the listening position is shown below.



Be sure to change the value in the Setup Display when you move the speakers. The default adjustments are in parentheses.

FRONT (10ft/3m)	Front speaker distance from the listening position can be set in 1 foot (0.3 meter) increments from 4 to 50 feet (1.2 to 15.2 meters).
CENTER (10ft/3m)	Center speaker distance can be moved up to 2 feet (0.6 meters) backward from the front speakers or 5 feet (1.5 meters) forward closer to the listening position, in 1 foot (0.3 meter) increments.
REAR (10ft/3m)	Rear speaker distance can be moved up to 16 feet (4.8 meters) closer to your listening position from the front speaker position, in 1 foot (0.3 meter) increments.

Notes

- If each of the front or rear speakers are not placed at an equal distance from your listening position, set the distance according to the closest speaker.
- Do not place the rear speakers farther away from your listening position than the front speakers.
- These settings do not affect the SACD Multi audio signals.

continued ➡

■BALANCE

You can vary the balance of the left and right speakers as follows. Be sure to set “TEST TONE” to “ON” for easy adjustment.
The default adjustments are in parentheses.

FRONT (0dB)	Adjust the balance between the front left and right speakers (–6dB [L] to +6dB [R], 0.5dB increments).
REAR (0dB)	Adjust the balance between the rear left and right speakers (–6dB [L] to +6dB [R], 0.5dB increments).

■LEVEL

You can vary the level of each speaker as follows. Be sure to set “TEST TONE” to “ON” for easy adjustment.
The default adjustments are in parentheses.

FRONT (0dB)	Adjust the level of the front speakers (–6dB to 0dB, 0.5 dB increments).
CENTER (0dB)	Adjust the level of the center speaker (–12dB to 0dB, 0.5dB increments).
REAR (0dB)	Adjust the level of the rear speakers (–12dB to 0dB, 0.5dB increments).
SUBWOOFER (0dB)	Adjust the level of the subwoofer (–10dB to +10dB, 0.5dB increments).

To adjust the volume of all the speakers at one time

Use the amplifier’s (receiver’s) volume control.

■TEST TONE

The speakers will emit a test tone. Use this when you use the 5.1CH OUTPUT jacks and adjust the “BALANCE” and “LEVEL.”

OFF	The test tone is not emitted from the speakers.
ON	The test tone is emitted from each speaker in sequence while adjusting balance or level. When you select one of the “SPEAKER SETUP” items, the test tone is emitted from both left and right speakers simultaneously.

Adjusting the speaker volume and level

1 **Select “SPEAKER SETUP” in the Setup Display.**

2 **Select “TEST TONE” and set to “ON.”**
You will hear the test tone from each speaker in sequence.

3 **From your listening position, select “BALANCE” or “LEVEL” and adjust the value of “BALANCE” using ←/→ and “LEVEL” using ↑/↓.**
The test tone is emitted from both left and right speakers simultaneously.

4 **Select “TEST TONE” and set to “OFF” to turn off the test tone.**

Notes

- When you adjust the speaker settings, the sound cuts off for a moment.
- The test tone signals are not output from the digital jack.

Additional Information

Troubleshooting

If you experience any of the following difficulties while using the player, use this troubleshooting guide to help remedy the problem before requesting repairs. Should any problem persist, consult your nearest Sony dealer.

Power

The power is not turned on.

➡ Check that the AC power cord is connected securely.

Picture

There is no picture.

➡ The connecting cords are not connected securely.
➡ The connecting cords are damaged.
➡ The player is not connected to the correct TV input jack (page 18).
➡ The video input on the TV is not set so that you can view pictures on the player.

Picture noise appears.

➡ The disc is dirty or flawed.
➡ If the picture output from your player goes through your VCR to get to your TV, the copy-protection signal applied to some DVD programs could affect picture quality. If you still experience problems even when you connect your player directly to your TV, please try connecting your player to your TV’s S video input (page 18).

Even though you set the aspect ratio in “TV TYPE” of “SCREEN SETUP,” the picture does not fill the screen.

➡ The aspect ratio of the disc is fixed on your DVD.

Sound

There is no sound.

➡ The connecting cord is not connected securely.
➡ The connecting cord is damaged.
➡ The player is connected to the wrong input jack on the amplifier (receiver) (page 22, 24, 26).
➡ The amplifier (receiver) input is not changed so that you can listen to the player.
➡ The player is in pause mode or in Slow-motion Play mode.
➡ The player is in fast forward or fast reverse mode.
➡ If the audio signal does not come through the DIGITAL OUT (OPTICAL or COAXIAL) jack, check the audio settings (page 83).
➡ SACD audio signals are not output from a digital jack.

Sound is noisy.

➡ The disc is dirty or flawed.

Sound distortion occurs.

➡ Set “AUDIO ATT” in “AUDIO SETUP” to “ON” (page 83).

The surround effect is difficult to hear when you are playing a Dolby Digital, or DTS sound track.

➡ Check the speaker connections and setting (page 22, 24, 26).
➡ Depending on the DVD, the output signal may not be the entire 5.1 channels. It may be monaural or stereo even if the sound track is recorded in Dolby Digital or DTS format.

The sound comes from the center speaker only.

➡ Depending on the disc, the sound may come from the center speaker only.
➡ Set “SURROUND” to “OFF” in the Control Menu display (page 58).

continued ➡

Operation

The remote does not function.

➡ There are obstacles between the remote and the player.
➡ The distance between the remote and the player is too far.
➡ The remote is not pointed at the remote sensor on the player.
➡ The batteries in the remote are weak.

The disc does not play.

➡ There is no disc inside.
➡ The disc is turned over. Insert the disc with the playback side facing down on the disc tray.
➡ The disc is skewed.
➡ The player cannot play CD-ROMs, etc. (page 6).
➡ The region code on the DVD does not match the player.
➡ Moisture has condensed inside the player. Remove the disc and leave the player turned on for about half an hour. Turn on the power again before playing the disc (page 3).
➡ The player cannot play DVD-Rs, DVD-RWs, CD-Rs, or CD-RWs that are not finalized.

The disc does not start playing from the beginning.

➡ Program Play, Shuffle Play, Repeat Play or A-B Repeat Play has been selected (page 40). Press CLEAR to cancel these functions before playing a disc.
➡ Resume Play has been selected. During stop, press ■ on the player or the remote and then start playback (page 36).
➡ Depending upon the disc, the menu may automatically appear on the TV screen.

The player starts playing the disc automatically.

➡ The disc features an auto playback function.
➡ "AUTO PLAY" in "CUSTOM SETUP" is set to "TIMER" (page 81).

Playback stops automatically.

➡ Some discs may contain an auto pause signal. While playing such a disc, the player stops playback at the auto pause signal.

You cannot perform some functions such as stop, Search, Scan, Slow-motion Play, Repeat Play, Shuffle Play, or Program Play.

➡ Depending on the disc, you may not be able to do some of the operations above. See the operating manual that comes with the disc.

The language for the sound track cannot be changed.

➡ Multilingual tracks are not recorded on the DVD being played.
➡ The DVD prohibits the changing of the language for the sound track.
➡ Try using the DVD's menu instead of the direct selection buttons on the remote (page 37).

The subtitle language cannot be changed.

➡ Try using the DVD's menu instead of the direct selection buttons on the remote (page 37).
➡ Multilingual subtitles are not recorded on the DVD being played.
➡ The DVD prohibits the changing of the subtitles.

The subtitle cannot be turned off.

➡ Try using the DVD's menu instead of the direct selection buttons on the remote (page 37).
➡ The DVD prohibits the subtitles being turned off.

The angles cannot be changed.

➡ Try using the DVD's menu instead of the direct selection buttons on the remote (page 37).
➡ Multi-angles are not recorded on the DVD being played. The angle can be changed when the "ANGLE" indicator lights up on the front panel display (page 9).
➡ The DVD prohibits changing of the angles.

The player does not operate properly.

➡ When static electricity, etc., causes the player to operate abnormally, press POWER on the player to turn the player off and then on again.

Nothing is displayed on the front panel display.

➡ "DIMMER" in "CUSTOM SETUP" is set to "OFF." Set "DIMMER" to "BRIGHT" or "DARK" (page 81).

5 numbers or letters are displayed on the screen and on the front panel display.

➡ The self-diagnosis function was activated. (See the table on page 91.)

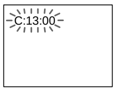
The disc cannot be removed and "LOCKED" appears on the front panel display.

➡ Contact your Sony dealer or local authorized Sony service facility.

Self-diagnosis Function

(When letters/numbers appear in the display)

When the self-diagnosis function is activated to prevent the player from malfunctioning, a five-character service number (e.g., C 13 00) with a combination of a letter and digits appears on the screen and the front panel display. In this case, check the following table.



First three characters of the service number	Cause and/or corrective action
C 13	The disc is dirty. ➡ Clean the disc with a soft cloth (page 7).
C 31	The disc is not inserted correctly. ➡ Re-insert the disc correctly.
E XX (xx is a number)	To prevent a malfunction, the player has performed the self-diagnosis function. ➡ Contact your nearest Sony dealer or local authorized Sony service facility and give the 5-character service number. Example: E 61 10

Glossary

Chapter (page 9)
Sections of a picture or a music feature that are smaller than titles. A title is composed of several chapters. Depending on the disc, no chapters may be recorded.

Digital Cinema Sound (DCS) (page 58)
Technology that Sony developed to enjoy surround in a home using 4 or more speakers. It simulates the sound of a movie editing studio instead of the usual concert hall so that you can enjoy the surround sound of a movie theater in the comfort of your own home.

Dolby Digital (page 20, 84)
Digital audio compression technology developed by Dolby Laboratories. This technology conforms to 5.1-channel surround sound. The rear channel is stereo and there is a discrete subwoofer channel in this format. Dolby Digital provides the same 5.1 discrete channels of high quality digital audio found in Dolby Digital cinema audio systems. Good channel separation is realized because all of the channel data are recorded discretely and little deterioration is realized because all channel data processing is digital.

Dolby Surround (Pro Logic) (page 84)
Audio signal processing technology that Dolby Laboratories developed for surround sound. When the input signal contains a surround component, the Pro Logic process outputs the front, center, and rear signals. The rear channel is monaural.

DTS (page 20, 85)
Digital audio compression technology that Digital Theater Systems, Inc. developed. This technology conforms to 5.1-channel surround sound. The rear channel is stereo and there is a discrete subwoofer channel in this format. DTS provides the same 5.1 discrete channels of high quality digital audio.
Good channel separation is realized because all of the channel data is recorded discretely and little deterioration is realized because all channel data processing is digital.

DVD VIDEO (page 6)
A disc that contains up to 8 hours of moving pictures even though its diameter is the same as a CD.
The data capacity of a single-layer and single-sided DVD is 4.7 GB (Giga Byte), which is 7 times that of a CD. The data capacity of a double-layer and single-sided DVD is 8.5 GB, a single-layer and double-sided DVD is 9.4 GB, and double-layer and double-sided DVD is 17 GB.
The picture data uses the MPEG 2 format, one of the worldwide standards of digital compression technology. The picture data is compressed to about 1/40 (average) of its original size. The DVD also uses a variable rate coding technology that changes the data to be allocated according to the status of the picture. Audio information is recorded in a multi-channel format, such as Dolby Digital, allowing you to enjoy a more real audio presence.
Furthermore, various advanced functions such as the multi-angle, multilingual, and Parental Control functions are provided with the DVD.

DVD-RW (page 6)
A DVD-RW is a recordable and rewritable disc with the same size as the DVD VIDEO. The DVD-RW can be recorded in two different modes: VR mode and Video mode. VR (Video Recording) mode enables various programming and editing functions, some of which are limited in the case of Video mode. Video mode complies with DVD VIDEO format and is compatible with DVD players while a DVD-RW recorded in VR mode can only be played on DVD-RW compliant players. The "DVD-RW" appears in this manual, or the on-screen display refers to DVD-RWs in VR mode.

Index (CD)/Video Index (VIDEO CD) (page 48)
A number that divides a track into sections to easily locate the point you want on an SACD/CD or VIDEO CD. Depending on the disc, no index may be recorded.

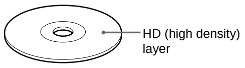
Parental Control (page 68)
A function of the DVD used to limit playback of the disc according to the age of the user and the limitation level in each country. The limitation varies from disc to disc; when it is activated, or playback is completely prohibited, violent scenes are skipped or replaced with other scenes, etc.

Region Code (page 6)
This system is used to protect copyrights. A region number is allocated on each DVD player or DVD disc according to the sales region. Each region code is shown on the player as well as on the disc packaging. The player can play the discs that match its region code. The player can also play discs with the ALL mark. Even when the region code is not shown on the DVD, the region limit may still be activated.

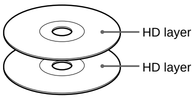
Scene (page 9)
On a VIDEO CD with PBC (playback control) functions, the menu screens, moving pictures and still pictures are divided into sections called "scenes."

Super Audio CD (SACD) (page 6)
An SACD disc can reproduce sounds that are extremely faithful to the original sound by use of DSD (Direct Stream Digital) technology. This technology utilizes a sampling frequency of 2.8224 MHz, which is 64 times that of a conventional CD, and 1-bit quantization that enables the disc to hold 4 times the amount of information that a standard PCM format CD can hold. SACDs are divided into the following types.

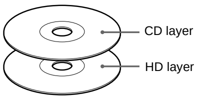
- Super Audio CD (single layer disc)
  This disc consists of a single HD layer*.
  * High density signal layer for the Super Audio CD



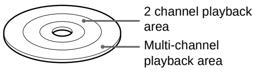
- Super Audio CD (dual layer disc)
  This disc consists of dual HD layers and is capable of extended play over long periods. Also, as the dual layer disc consists of dual HD layers on one side only, you do not have to turn the disc over during playback.



- Super Audio CD + CD (Hybrid disc)
  This disc consists of an HD layer and a CD layer. Also, as the dual layers are on one side only, you do not have to turn the disc over during playback. You can play the CD layer using a conventional CD player.



- 2 channel + Multi-channel Super Audio CD
  This disc consists of the 2 channel playback area and the multi-channel playback area.



Title (page 9)
The longest section of a picture or music feature on a DVD, movie, etc., in video software, or the entire album in audio software.

continued ➡

Track (page 9)
Sections of a picture or a music feature on an SACD/CD or VIDEO CD (the length of a song).

TV Virtual Surround (TVS) (page 58)
Technology from Sony developed to produce surround sound for home use using just a stereo TV. Designed to work with the sound characteristics of your TV, this technology brings the excitement of surround sound to your home using nothing more than your stereo TV's internal speakers. Furthermore, various TVS modes are available. For example, "TVS WIDE" uses just two speakers to create a virtual sound environment that makes you feel like you are surrounded by multiple speakers.

Specifications

System

Laser	Semiconductor laser
Signal format system	NTSC

Audio characteristics

Frequency response	DVD (PCM 96 kHz): 2 Hz to 44 kHz (-2 dB ± 2.0 dB at 44 kHz) SACD: 2 Hz to 100 kHz (-3 dB ± 2.0 dB at 50 kHz) CD: 2 Hz to 20 kHz (±0.5 dB)
Signal-to-noise ratio (S/N ratio)	115 dB (DVD VIDEO) (LINE OUT L/R (AUDIO) 1/2 jacks only)
Harmonic distortion	0.003 %
Dynamic range	DVD VIDEO/SACD: 103 dB CD: 99 dB
Wow and flutter	Less than detected value (±0.001% W PEAK)

Outputs

Jack name	Jack type	Output level	Load impedance
DIGITAL OUT (OPTICAL)	Optical output jack	-18 dBm	Wave length 660 nm
DIGITAL OUT (COAXIAL)	Phono jack	0.5 Vp-p	75 ohms terminated
LINE OUT L/R (AUDIO) 1/2	Phono jack	2 Vrms (at 50 kilohms)	Over 10 kilohms
5.1CH OUTPUT	Phono jack	2 Vrms (at 50 kilohms)	Over 10 kilohms
LINE OUT (VIDEO) 1/2	Phono jack	1.0 Vp-p	75 ohms, sync negative
S VIDEO OUT 1/2	4-pin mini DIN	Y: 1.0 Vp-p C: 0.286 Vp-p	75 ohms, sync negative 75 ohms terminated
COMPONENT VIDEO OUT (Y, PB, PR)	Phono jack	Y: 1.0 Vp-p PB, PR: 0.7 Vp-p	75 ohms, sync negative 75 ohms
AUDIO IN L/R	Phono jack	-	47 kilohms
MEGA CONTROL	Mini jack	-	-
PHONES	Phone jack	12 mW	32 ohms

General

Power requirements	120 V AC, 60 Hz
Power consumption	17 W
Dimensions (approx.)	430 × 108 × 414 mm (17 × 4 3/8 × 16 3/8 in.) (width/height/depth) including projecting parts
Mass (approx.)	5.5 kg (12 lb. 2 oz.)
Operating temperature	5°C to 35°C (41°F to 95°F)
Operating humidity	25% to 80%

continued →

Language Code List

For details, see pages 56, 64, 78.
The language spellings conform to the ISO 639: 1988 (E/F) standard.

Code	Language
1027	Afar
1028	Abkhazian
1032	Afrikaans
1039	Amharic
1044	Arabic
1045	Assamese
1051	Aymara
1052	Azerbaijani
1053	Bashkir
1057	Byelorussian
1059	Bulgarian
1060	Bihari
1061	Bislama
1066	Bengali; Bangla
1067	Tibetan
1070	Breton
1079	Catalan
1093	Corsican
1097	Czech
1103	Welsh
1105	Danish
1109	German
1130	Bhutani
1142	Greek
1144	English
1145	Esperanto
1149	Spanish
1150	Estonian
1151	Basque
1157	Persian
1165	Finnish
1166	Fiji
1171	Faroese
1174	French
1181	Frisian
1183	Irish
1186	Scots Gaelic
1194	Galician
1196	Guarani
1203	Gujarati
1209	Hausa
1217	Hindi
1226	Croatian
1229	Hungarian
1233	Armenian
1235	Interlingua
1239	Interlingue
1245	Inupiak
1248	Indonesian
1253	Icelandic
1254	Italian
1257	Hebrew
1261	Japanese
1269	Yiddish
1283	Javanese
1287	Georgian
1297	Kazakh
1298	Greenlandic
1299	Cambodian
1300	Kannada
1301	Korean
1305	Kashmiri
1307	Kurdish
1311	Kirghiz
1313	Latin
1326	Lingala
1327	Laothian
1332	Lithuanian
1334	Latvian; Lettish
1345	Malagasy
1347	Maori
1349	Macedonian
1350	Malayalam
1352	Mongolian
1353	Moldavian
1356	Marathi
1357	Malay
1358	Maltese
1363	Burmese
1365	Nauru
1369	Nepali
1376	Dutch
1379	Norwegian
1393	Occitan
1403	(Afan) Oromo
1408	Oriya
1417	Punjabi
1428	Polish
1435	Pashto; Pushto
1436	Portuguese
1463	Quechua
1481	Rhaeto-Romance
1482	Kirundi
1483	Romanian
1489	Russian
1491	Kinyarwanda
1495	Sanskrit
1498	Sindhi
1501	Sangho
1502	Serbo-Croatian
1503	Singhalese
1505	Slovak
1506	Slovenian
1507	Samoan
1508	Shona
1509	Somali
1511	Albanian
1512	Serbian
1513	Siswati
1514	Sesotho
1515	Sundanese
1516	Swedish
1517	Swahili
1521	Tamil
1525	Telugu
1527	Tajik
1528	Thai
1529	Tigrinya
1531	Turkmen
1532	Tagalog
1534	Setswana
1535	Tonga
1538	Turkish
1539	Tsonga
1540	Tatar
1543	Twi
1557	Ukrainian
1564	Urdu
1572	Uzbek
1581	Vietnamese
1587	Volapük
1613	Wolof
1632	Xhosa
1665	Yoruba
1684	Chinese
1697	Zulu
1703	Not specified

List of Setup Display Items

The default settings are underlined.

LANGUAGE SETUP (page 78)

OSD	ENGLISH FRENCH SPANISH PORTUGUESE
MENU	ENGLISH FRENCH SPANISH PORTUGUESE GERMAN ITALIAN DUTCH CHINESE JAPANESE DANISH SWEDISH FINNISH NORWEGIAN RUSSIAN OTHERS →
AUDIO	ORIGINAL (All other selections are same as the "MENU" language.)
SUBTITLE	AUDIO FOLLOW (All other selections are same as the "MENU" language.)

SCREEN SETUP (page 79)

TV TYPE	4:3 LETTER BOX 4:3 PAN SCAN 16:9
SCREEN SAVER	ON OFF
BACKGROUND	JACKET PICTURE GRAPHICS BLUE BLACK

CUSTOM SETUP (page 81)

AUTO PLAY	OFF TIMER DEMO1 DEMO2
DIMMER	BRIGHT DARK OFF
PAUSE MODE	AUTO FRAME
PLAYBACK MEMORY	ON OFF
TRACK SELECTION	OFF AUTO
CD DIRECT	OFF ON

AUDIO SETUP (page 83)

AUDIO ATT	OFF ON		
AUDIO DRC	STANDARD TV MODE WIDE RANGE		
AUDIO FILTER	SHARP SLOW		
DOWNMIX	DOLBY SURROUND NORMAL		
DIGITAL OUT	ON	DOLBY DIGITAL	D-PCM DOLBY DIGITAL
		DTS	D-PCM DTS
		48kHz/96kHz PCM	48kHz/16bit 96kHz/24bit
	OFF		

SPEAKER SETUP (page 86)

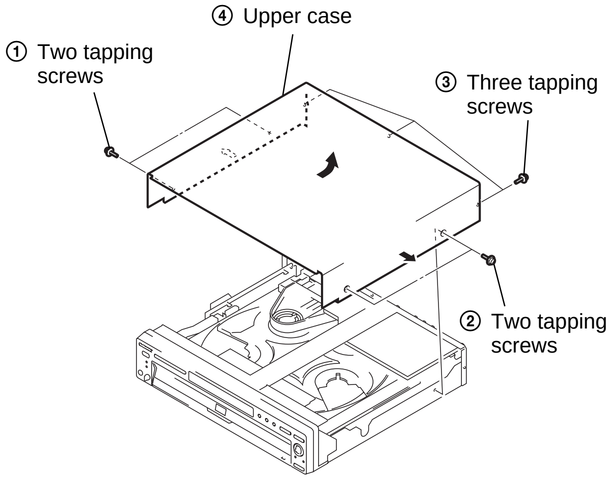
SIZE	FRONT	LARGE SMALL
	CENTER	NONE LARGE SMALL
	REAR	NONE LARGE (REAR) LARGE (SIDE) SMALL (REAR) SMALL (SIDE)
	SUBWOOFER	NONE YES
DISTANCE (The distance from the listening position.)	FRONT	4ft ~ 50ft (1.2m ~ 15.2m)
	CENTER	0ft ~ 52ft (0m ~ 15.8m) (It changes according to the distance from the front speaker.)
	REAR	0ft ~ 50ft (0m ~ 15.2m) (It changes according to the distance from the front speaker.)
BALANCE	FRONT	– 6dB ~ + 6dB
	REAR	– 6dB ~ + 6dB
LEVEL	FRONT	– 6dB ~ 0dB
	CENTER	– 12dB ~ 0dB
	REAR	– 12dB ~ 0dB
	SUBWOOFER	– 10dB ~ + 10dB
TEST TONE	OFF ON	

continued ➡

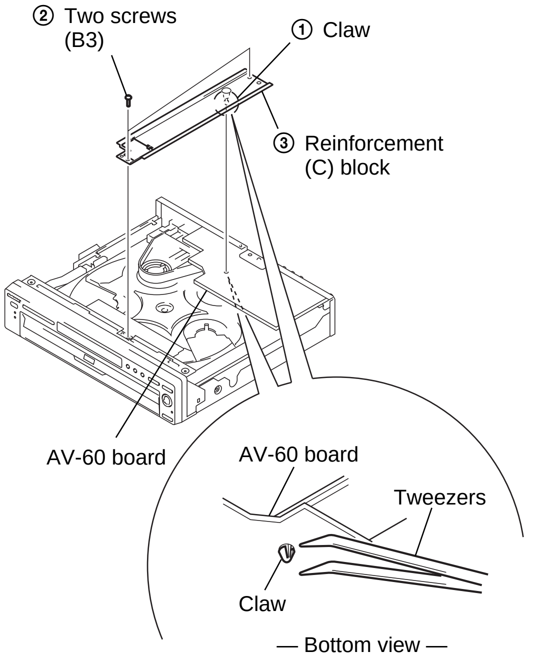
SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

2-1. UPPER CASE REMOVAL


④ Upper case
① Two tapping screws
③ Three tapping screws
② Two tapping screws

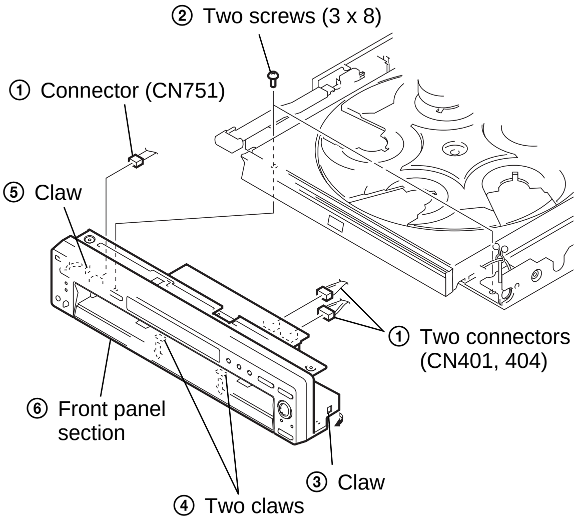
2-2. REINFORCEMENT (C) BLOCK REMOVAL


② Two screws (B3)
① Claw
③ Reinforcement (C) block
AV-60 board
AV-60 board
Tweezers
Claw

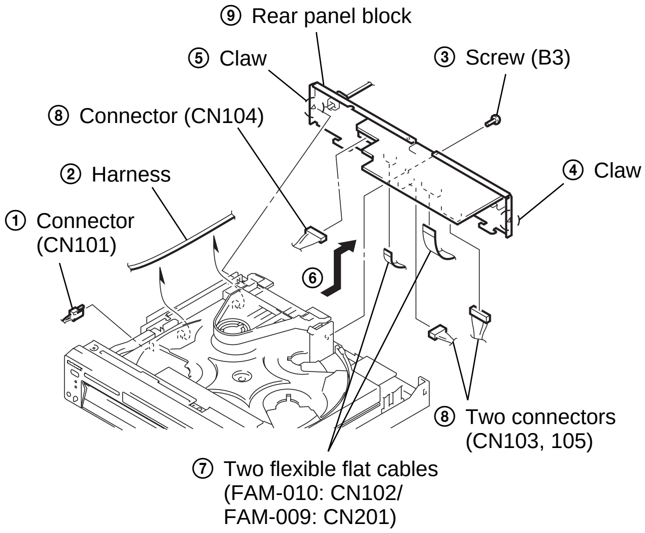
— Bottom view —

Unhook the claw holding the tip coming through the reverse side of AV-60 board with tweezers.

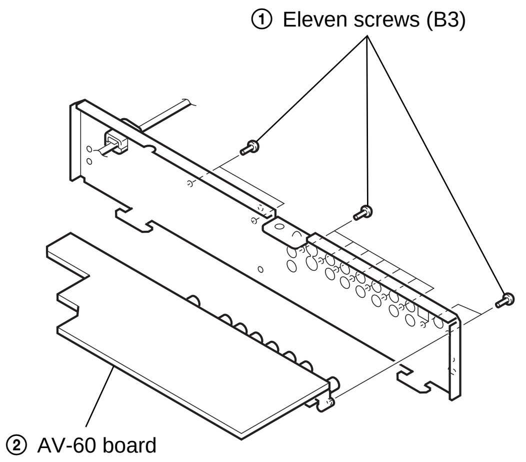
2-3. FRONT PANEL SECTION REMOVAL


② Two screws (3 x 8)
① Connector (CN751)
⑤ Claw
① Two connectors (CN401, 404)
⑥ Front panel section
③ Claw
④ Two claws

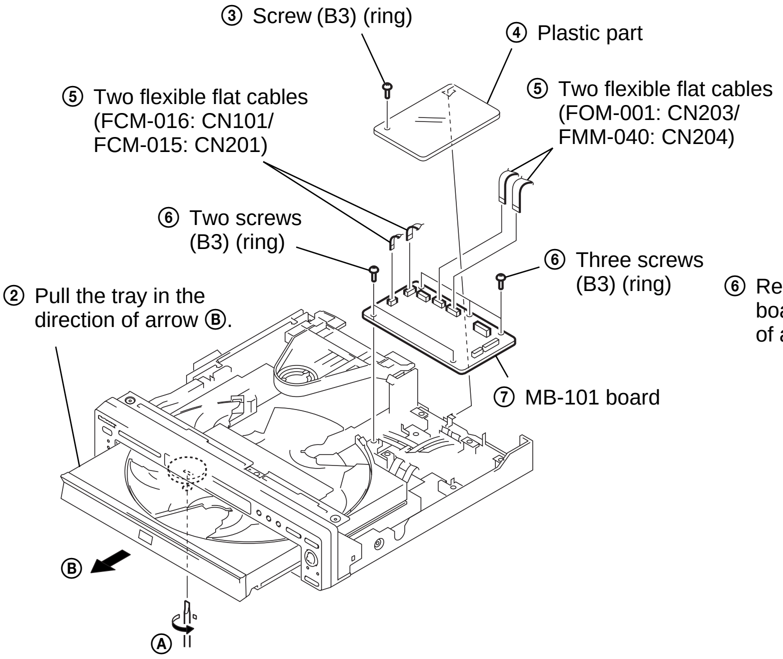
2-4. REAR PANEL BLOCK REMOVAL


⑨ Rear panel block
⑤ Claw
③ Screw (B3)
⑧ Connector (CN104)
② Harness
④ Claw
① Connector (CN101)
⑥
⑧ Two connectors (CN103, 105)
⑦ Two flexible flat cables (FAM-010: CN102/ FAM-009: CN201)

2-5. AV-60 BOARD REMOVAL

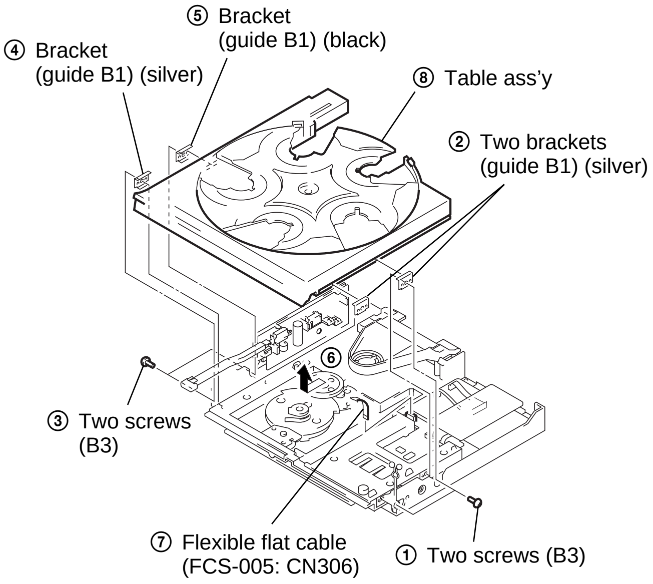

① Eleven screws (B3)
② AV-60 board

2-6. MB-101 BOARD REMOVAL

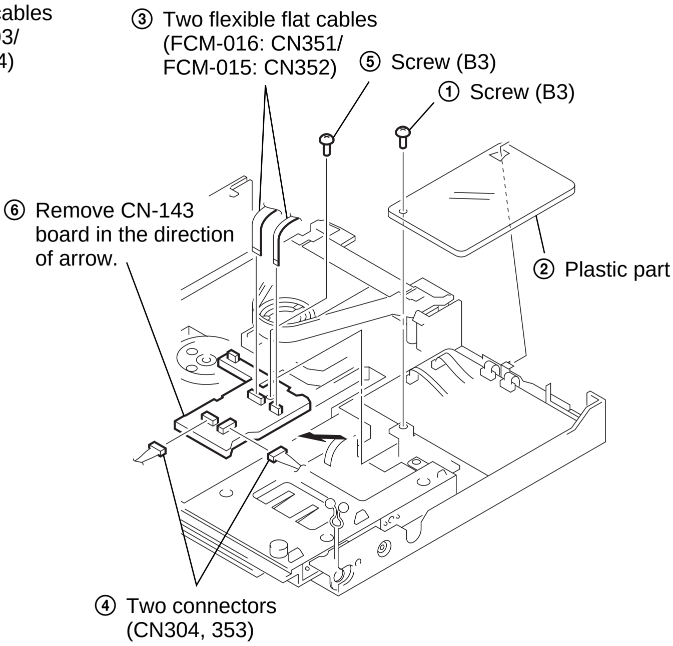

③ Screw (B3) (ring)
④ Plastic part
⑤ Two flexible flat cables (FCM-016: CN101/ FCM-015: CN201)
⑤ Two flexible flat cables (FOM-001: CN203/ FMM-040: CN204)
⑥ Two screws (B3) (ring)
⑥ Three screws (B3) (ring)
② Pull the tray in the direction of arrow Ⓑ.
⑦ MB-101 board
Ⓑ
Ⓐ

① Insert a flat-blade screwdriver into a hole at the bottom, and rotate the cam gear in the direction of arrow Ⓐ.

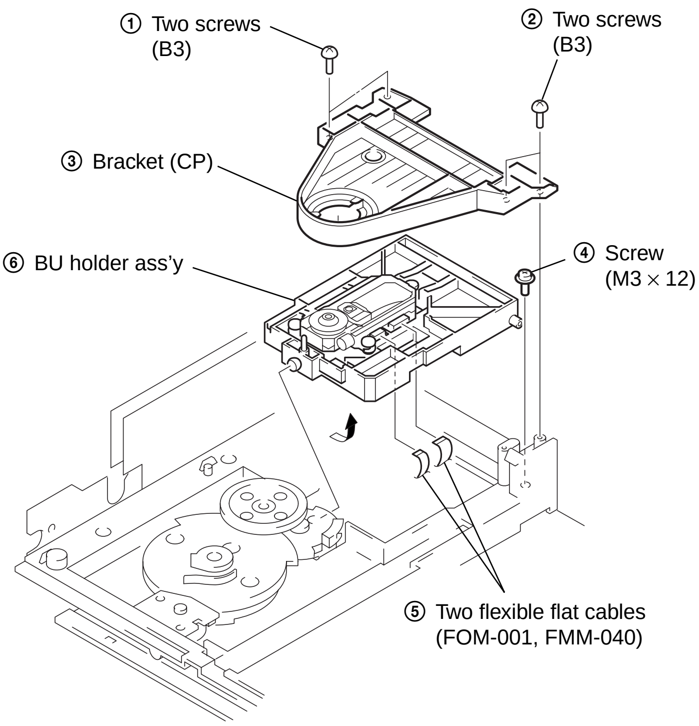
2-7. TABLE ASS'Y REMOVAL


⑤ Bracket (guide B1) (black)
④ Bracket (guide B1) (silver)
⑧ Table ass'y
② Two brackets (guide B1) (silver)
⑥
③ Two screws (B3)
⑦ Flexible flat cable (FCS-005: CN306)
① Two screws (B3)

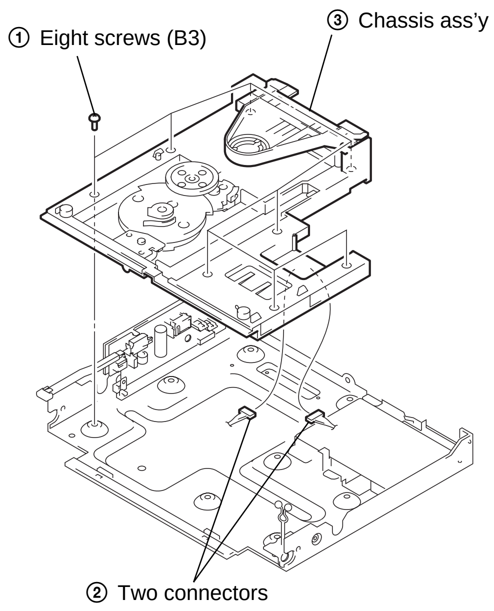
2-8. CN-143 BOARD REMOVAL


③ Two flexible flat cables (FCM-016: CN351/ FCM-015: CN352)
⑤ Screw (B3)
① Screw (B3)
⑥ Remove CN-143 board in the direction of arrow.
② Plastic part
④ Two connectors (CN304, 353)

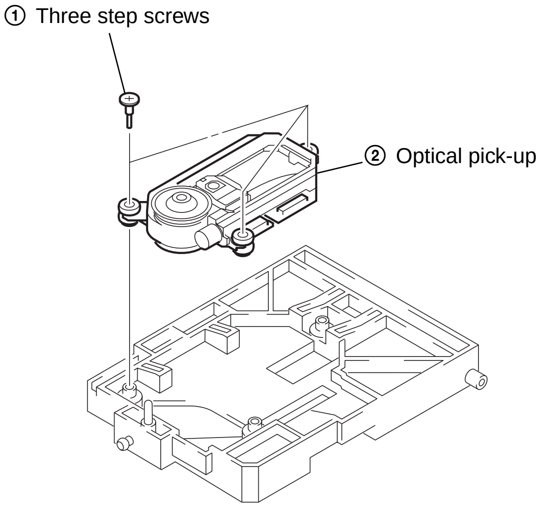
2-9. BU HOLDER ASS'Y REMOVAL


① Two screws (B3)
② Two screws (B3)
③ Bracket (CP)
④ Screw (M3 × 12)
⑤ Two flexible flat cables (FOM-001, FMM-040)
⑥ BU holder ass'y

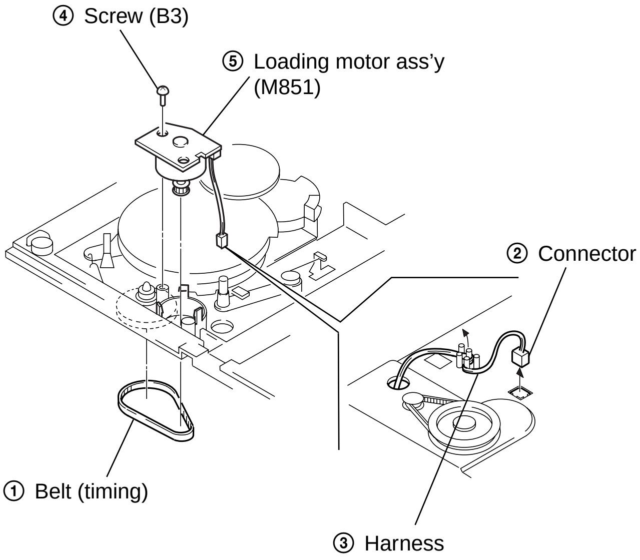
2-11. CHASSIS ASS'Y REMOVAL


① Eight screws (B3)
② Two connectors
③ Chassis ass'y

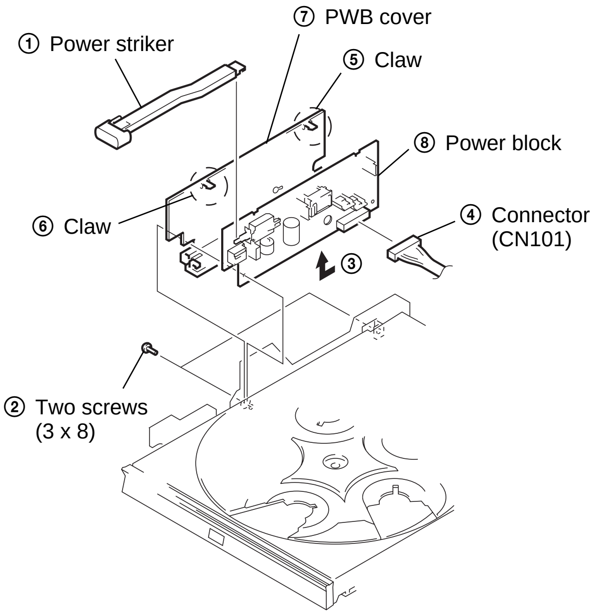
2-10. OPTICAL PICK-UP REMOVAL


① Three step screws
② Optical pick-up

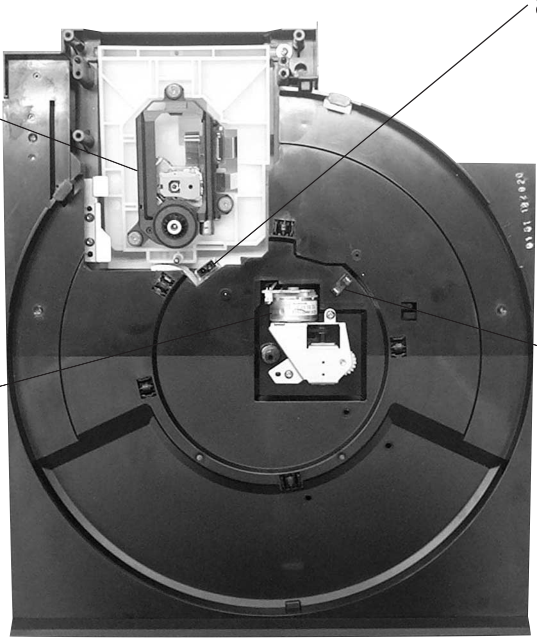
2-12. LOADING MOTOR ASS'Y (M851) REMOVAL


① Belt (timing)
② Connector
③ Harness
④ Screw (B3)
⑤ Loading motor ass'y (M851)

2-13. POWER BLOCK REMOVAL


⑦ PWB cover
① Power striker
⑤ Claw
⑧ Power block
④ Connector (CN101)
⑥ Claw
③
② Two screws (3 x 8)

2-14. INTERNAL VIEWS

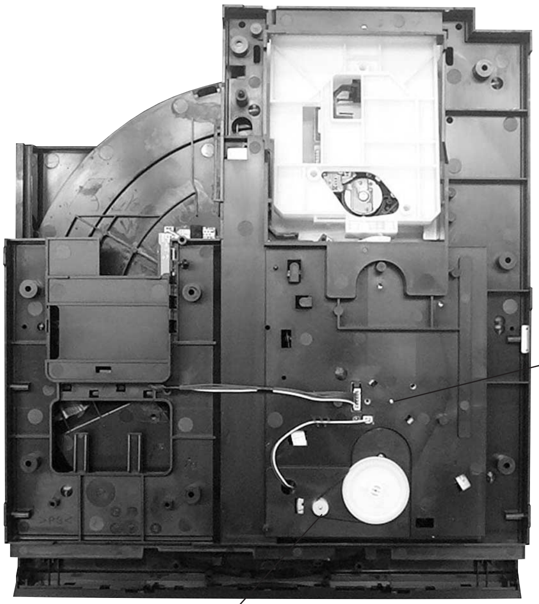


PH501
Disc presence detection sensor
8-749-924-30

Optical pick-up
(KHM-240 AAA/J1RP)
8-820-144-06

M951
DC motor (turn table)
1-541-632-12

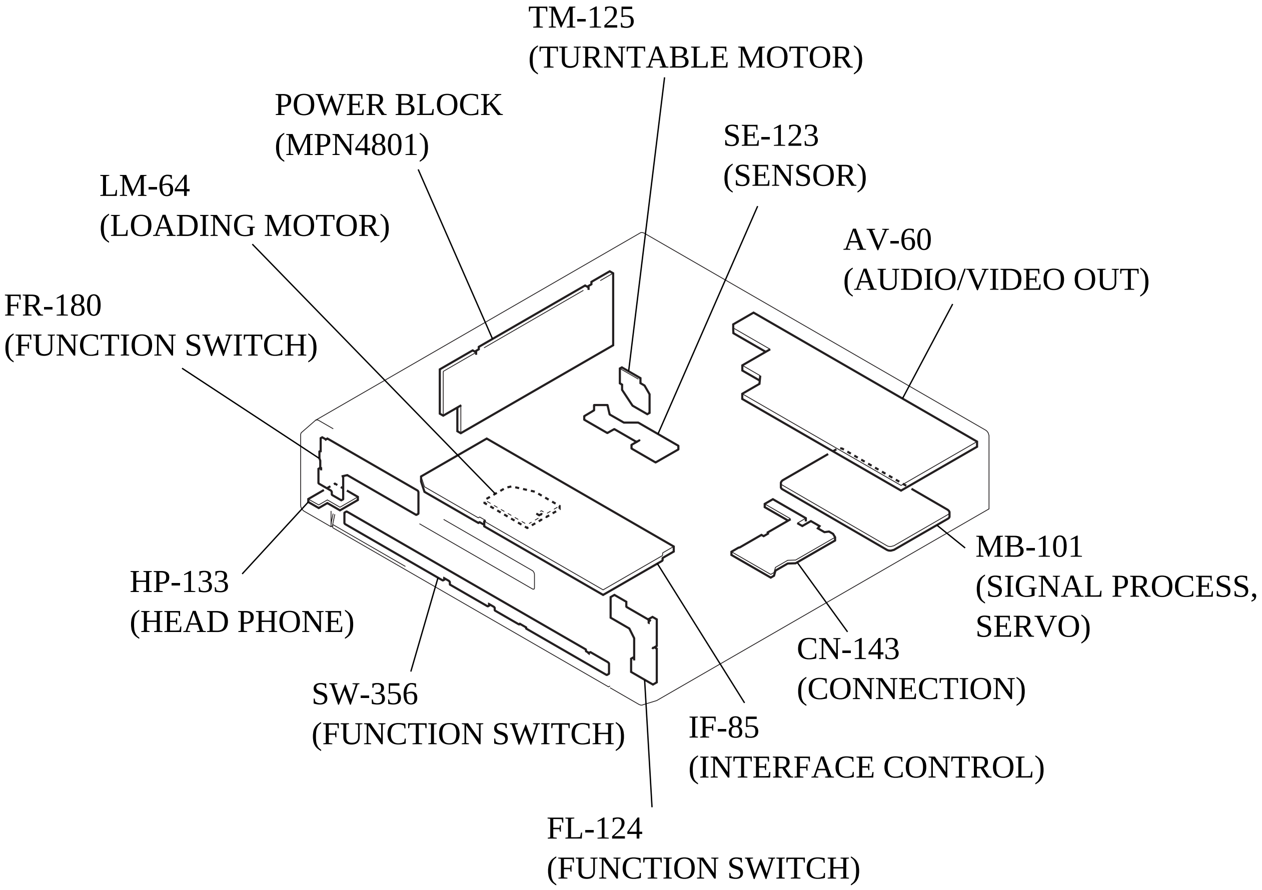
PH502
Roulette position
detection sensor
8-749-924-18



Rotary encoder
(loading)
1-466-996-21

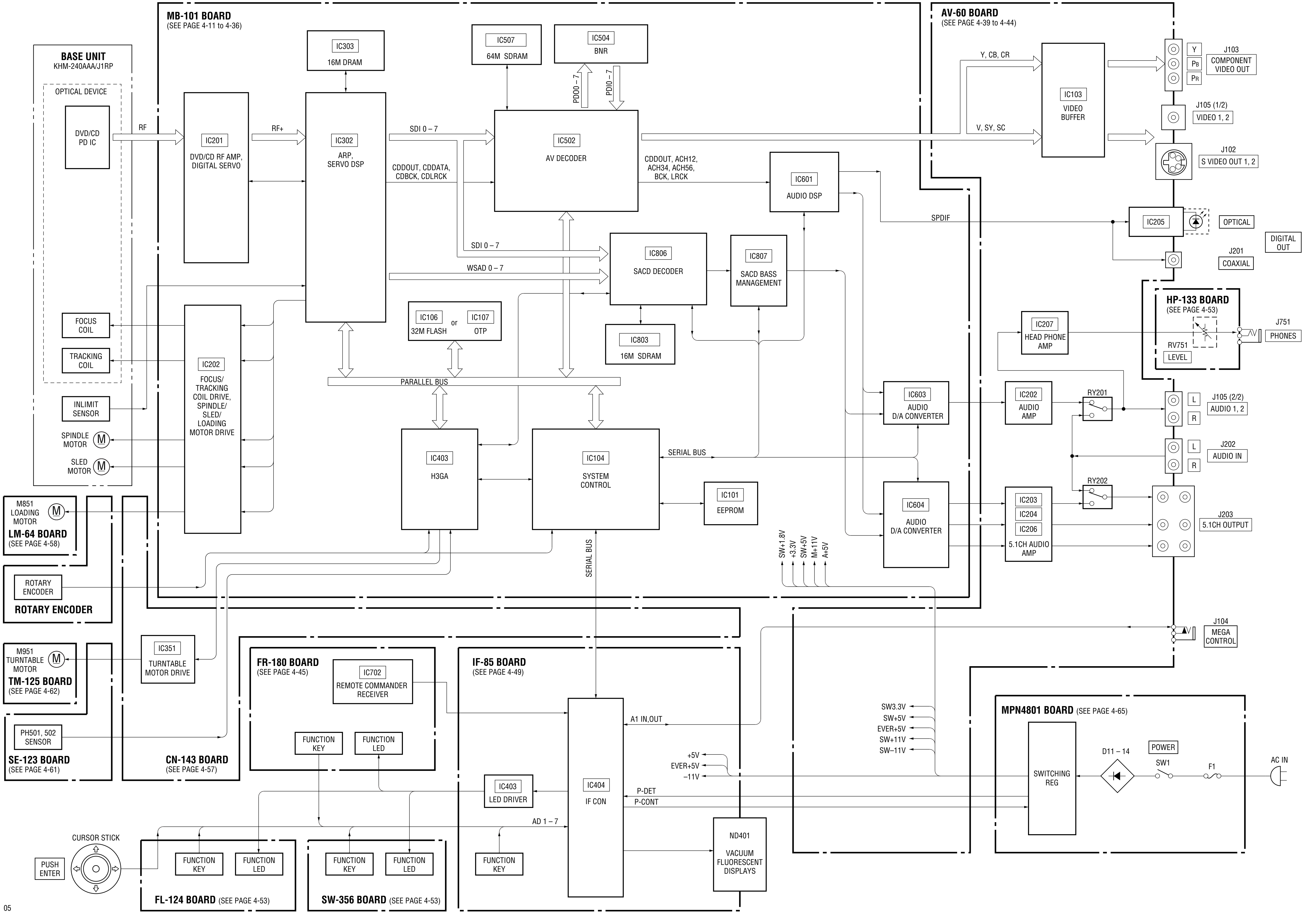
M851
Loading motor ass’y
A-4660-977-A

2-15. CIRCUIT BOARDS LOCATION

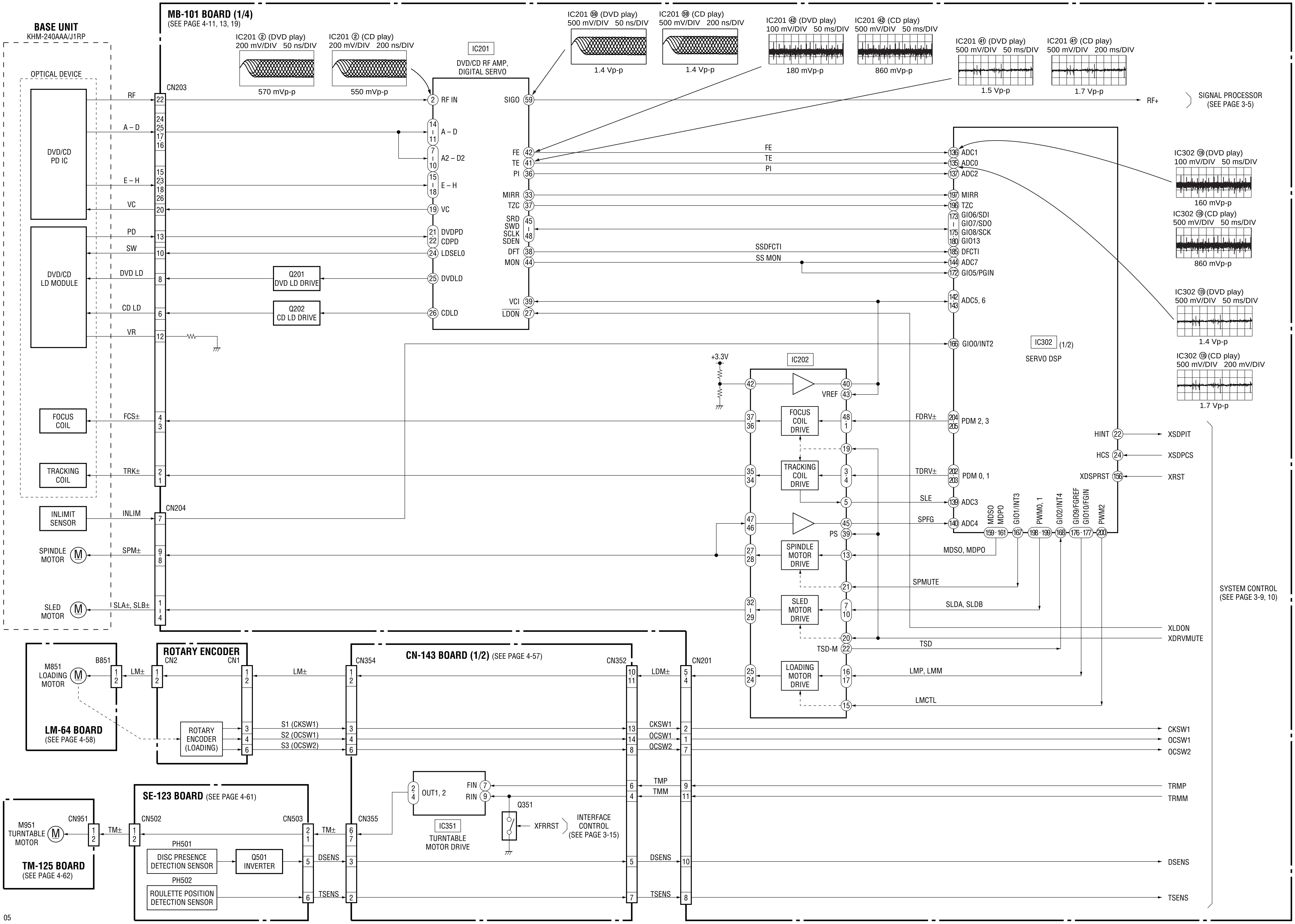

TM-125
(TURNTABLE MOTOR)
POWER BLOCK
(MPN4801)
SE-123
(SENSOR)
LM-64
(LOADING MOTOR)
AV-60
(AUDIO/VIDEO OUT)
FR-180
(FUNCTION SWITCH)
MB-101
(SIGNAL PROCESS,
SERVO)
HP-133
(HEAD PHONE)
CN-143
(CONNECTION)
SW-356
(FUNCTION SWITCH)
IF-85
(INTERFACE CONTROL)
FL-124
(FUNCTION SWITCH)

SECTION 3
BLOCK DIAGRAMS

3-1. OVERALL BLOCK DIAGRAM

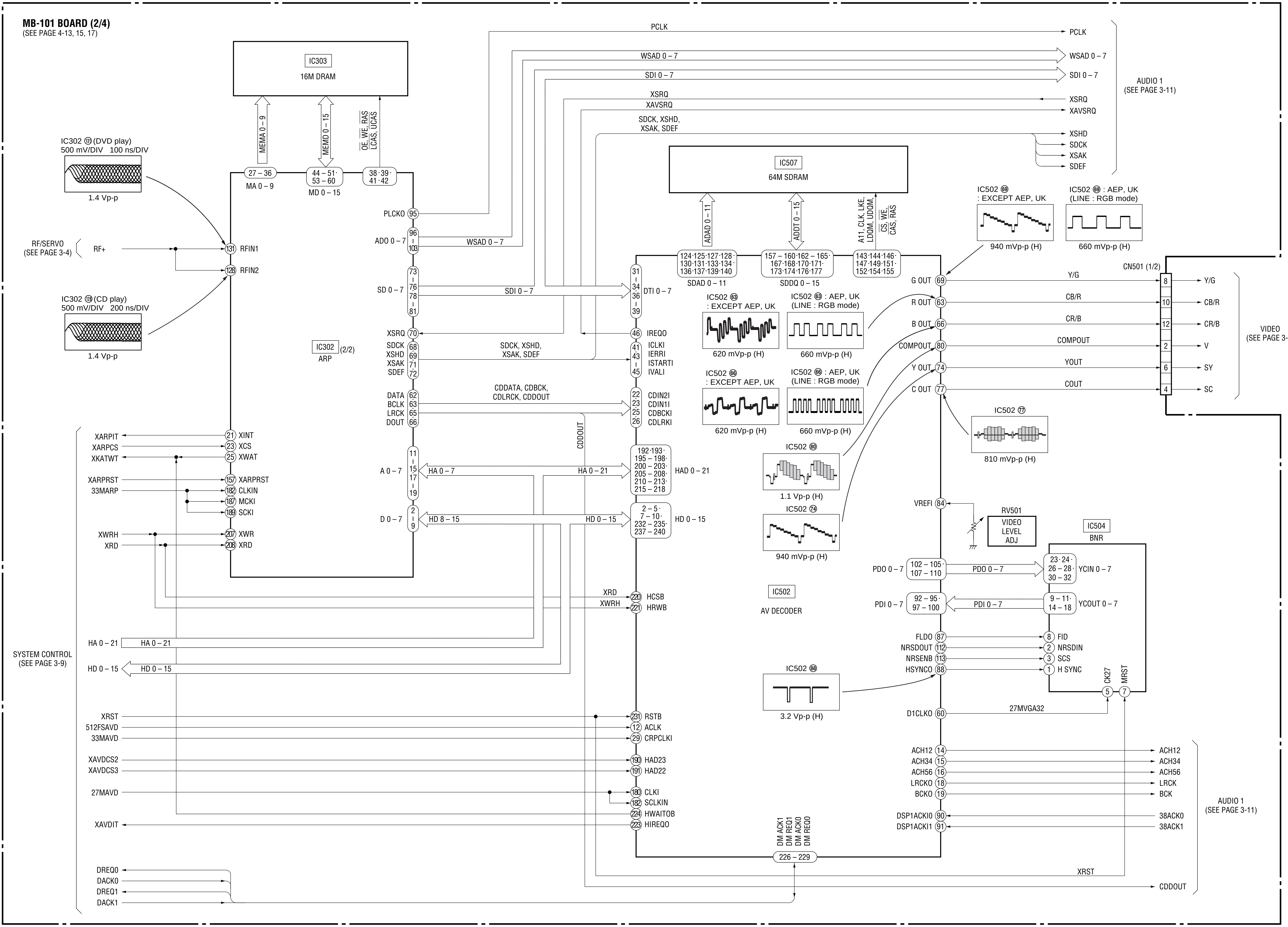

MB-101 BOARD
(SEE PAGE 4-11 to 4-36)
BASE UNIT
KHM-240AAA/J1RP
OPTICAL DEVICE
DVD/CD PD IC
RF
IC201
DVD/CD RF AMP, DIGITAL SERVO
RF+
IC303
16M DRAM
IC302
ARP, SERVO DSP
SDI 0 – 7
CDDOUT, CDDATA, CDBCK, CDLRCK
IC507
64M SDRAM
IC504
BNR
PDO0 – 7
PDI0 – 7
IC502
AV DECODER
CDDOUT, ACH12, ACH34, ACH56, BCK, LRCK
IC601
AUDIO DSP
SDI 0 – 7
WSAD 0 – 7
IC806
SACD DECODER
IC807
SACD BASS MANAGEMENT
IC803
16M SDRAM
IC106
32M FLASH
or
IC107
OTP
PARALLEL BUS
FOCUS COIL
TRACKING COIL
INLIMIT SENSOR
SPINDLE MOTOR
SLED MOTOR
M
IC202
FOCUS/ TRACKING COIL DRIVE, SPINDLE/ SLED/ LOADING MOTOR DRIVE
IC403
H3GA
IC104
SYSTEM CONTROL
SERIAL BUS
IC101
EEPROM
SERIAL BUS
SW+1.8V
+3.3V
SW+5V
M+11V
A+5V
M851
LOADING MOTOR
LM-64 BOARD
(SEE PAGE 4-58)
ROTARY ENCODER
ROTARY ENCODER
M951
TURNTABLE MOTOR
TM-125 BOARD
(SEE PAGE 4-62)
PH501, 502
SENSOR
SE-123 BOARD
(SEE PAGE 4-61)
IC351
TURNTABLE MOTOR DRIVE
CN-143 BOARD
(SEE PAGE 4-57)
AV-60 BOARD
(SEE PAGE 4-39 to 4-44)
Y, CB, CR
V, SY, SC
IC103
VIDEO BUFFER
Y
PB
PR
J103
COMPONENT VIDEO OUT
J105 (1/2)
VIDEO 1, 2
J102
S VIDEO OUT 1, 2
SPDIF
IC205
OPTICAL
DIGITAL OUT
J201
COAXIAL
HP-133 BOARD
(SEE PAGE 4-53)
IC207
HEAD PHONE AMP
RV751
LEVEL
J751
PHONES
IC603
AUDIO D/A CONVERTER
IC202
AUDIO AMP
RY201
L
R
J105 (2/2)
AUDIO 1, 2
J202
AUDIO IN
RY202
IC604
AUDIO D/A CONVERTER
IC203
IC204
IC206
5.1CH AUDIO AMP
J203
5.1CH OUTPUT
J104
MEGA CONTROL
FR-180 BOARD
(SEE PAGE 4-45)
IC702
REMOTE COMMANDER RECEIVER
FUNCTION KEY
FUNCTION LED
IF-85 BOARD
(SEE PAGE 4-49)
A1 IN,OUT
IC404
IF CON
IC403
LED DRIVER
P-DET
P-CONT
AD 1 – 7
+5V
EVER+5V
–11V
ND401
VACUUM FLUORESCENT DISPLAYS
FUNCTION KEY
SW3.3V
SW+5V
EVER+5V
SW+11V
SW–11V
MPN4801 BOARD (SEE PAGE 4-65)
SWITCHING REG
D11 – 14
POWER
SW1
F1
AC IN
CURSOR STICK
PUSH ENTER
FUNCTION KEY
FUNCTION LED
FL-124 BOARD (SEE PAGE 4-53)
FUNCTION KEY
FUNCTION LED
SW-356 BOARD (SEE PAGE 4-53)
05

3-2. RF/SERVO BLOCK DIAGRAM

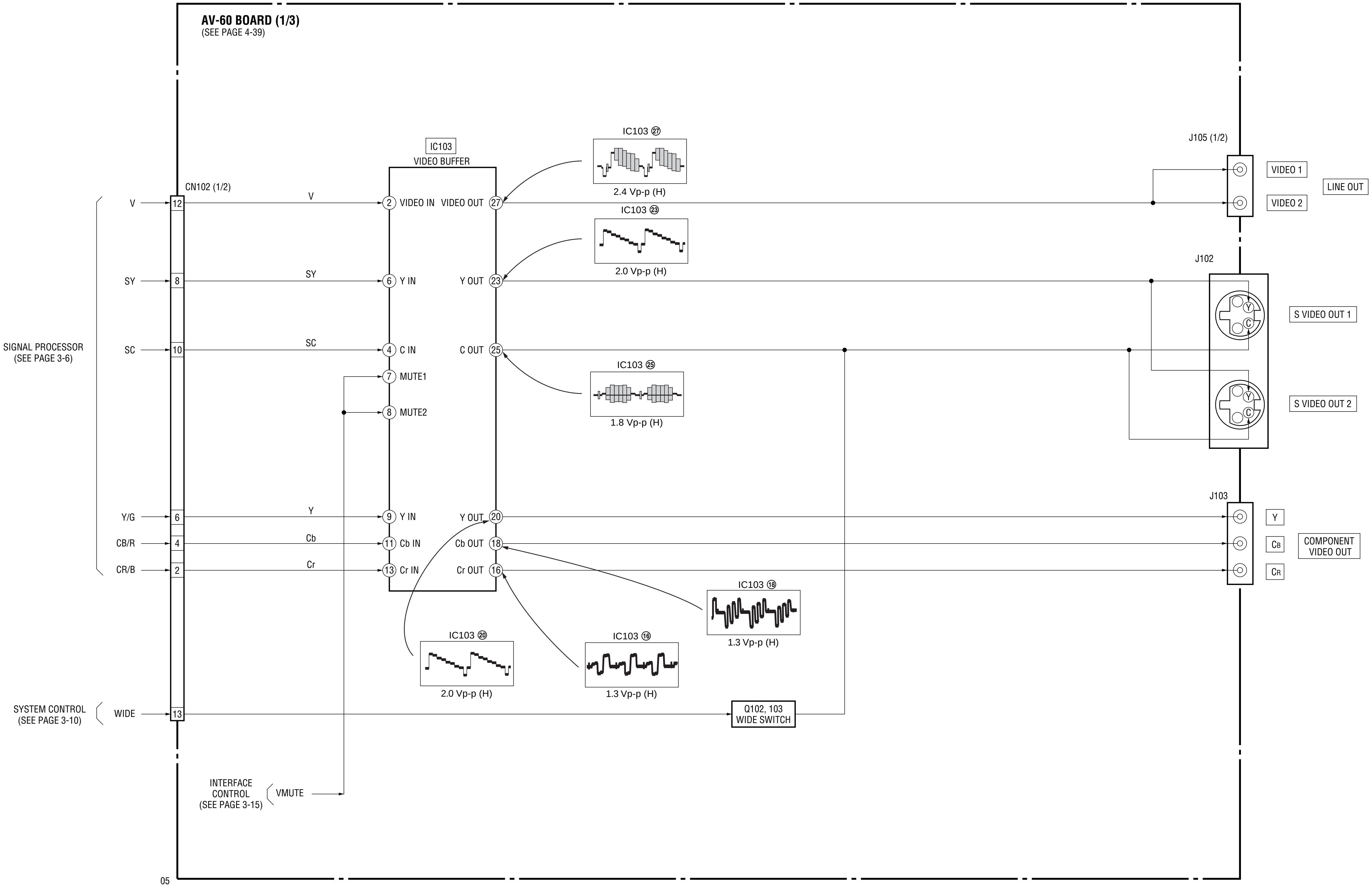

BASE UNIT
KHM-240AAA/J1RP
OPTICAL DEVICE
DVD/CD PD IC
DVD/CD LD MODULE
FOCUS COIL
TRACKING COIL
INLIMIT SENSOR
SPINDLE MOTOR
SLED MOTOR
RF
A – D
E – H
VC
PD
SW
DVD LD
CD LD
VR
FCS±
TRK±
INLIM
SPM±
SLA±, SLB±
MB-101 BOARD (1/4)
(SEE PAGE 4-11, 13, 19)
CN203
CN204
IC201 ② (DVD play)
200 mV/DIV 50 ns/DIV
570 mVp-p
IC201 ② (CD play)
200 mV/DIV 200 ns/DIV
550 mVp-p
IC201
DVD/CD RF AMP, DIGITAL SERVO
RF IN
A – D
A2 – D2
E – H
VC
DVDPD
CDPD
LDSEL0
DVDLD
CDLD
SIGO
FE
TE
PI
MIRR
TZC
SRD
SWD
SCLK
SDEN
DFT
MON
VCI
LDON
Q201
DVD LD DRIVE
Q202
CD LD DRIVE
IC201 (59) (DVD play)
500 mV/DIV 50 ns/DIV
1.4 Vp-p
IC201 (59) (CD play)
500 mV/DIV 200 ns/DIV
1.4 Vp-p
IC201 (42) (DVD play)
100 mV/DIV 50 ms/DIV
180 mVp-p
IC201 (42) (CD play)
500 mV/DIV 50 ms/DIV
860 mVp-p
IC201 (41) (DVD play)
500 mV/DIV 50 ms/DIV
1.5 Vp-p
IC201 (41) (CD play)
500 mV/DIV 200 ms/DIV
1.7 Vp-p
RF+
SIGNAL PROCESSOR
(SEE PAGE 3-5)
FE
TE
PI
SSDFCTI
SS MON
ADC1
ADC0
ADC2
MIRR
TZC
GIO6/SDI
GIO7/SDO
GIO8/SCK
GIO13
DFCTI
ADC7
GIO5/PGIN
ADC5, 6
GIO0/INT2
IC302 (1/2)
SERVO DSP
PDM 2, 3
PDM 0, 1
ADC3
ADC4
MDSO
MDPO
GIO1/INT3
PWM0, 1
GIO2/INT4
GIO9/FGREF
GIO10/FGIN
PWM2
IC302 (136) (DVD play)
100 mV/DIV 50 ms/DIV
160 mVp-p
IC302 (136) (CD play)
500 mV/DIV 50 ms/DIV
860 mVp-p
IC302 (135) (DVD play)
500 mV/DIV 50 ms/DIV
1.4 Vp-p
IC302 (135) (CD play)
500 mV/DIV 200 mV/DIV
1.7 Vp-p
HINT
HCS
XDSPRST
XSDPIT
XSDPCS
XRST
+3.3V
IC202
VREF
FOCUS COIL DRIVE
TRACKING COIL DRIVE
PS
SPINDLE MOTOR DRIVE
SLED MOTOR DRIVE
TSD-M
LOADING MOTOR DRIVE
FDRV±
TDRV±
SLE
SPFG
MDSO, MDPO
SPMUTE
SLDA, SLDB
TSD
LMP, LMM
LMCTL
XLDON
XDRVMUTE
SYSTEM CONTROL
(SEE PAGE 3-9, 10)
CN201
M851
LOADING MOTOR
B851
LM±
LM-64 BOARD
(SEE PAGE 4-58)
ROTARY ENCODER
CN2
CN1
ROTARY ENCODER (LOADING)
S1 (CKSW1)
S2 (OCSW1)
S3 (OCSW2)
CN-143 BOARD (1/2) (SEE PAGE 4-57)
CN354
CN352
CN355
LDM±
CKSW1
OCSW1
OCSW2
TMP
TMM
CKSW1
OCSW1
OCSW2
TRMP
TRMM
OUT1, 2
FIN
RIN
IC351
TURNTABLE MOTOR DRIVE
Q351
XFRRST
INTERFACE CONTROL
(SEE PAGE 3-15)
SE-123 BOARD (SEE PAGE 4-61)
CN502
CN503
PH501
DISC PRESENCE DETECTION SENSOR
Q501
INVERTER
PH502
ROULETTE POSITION DETECTION SENSOR
TM±
DSENS
TSENS
M951
TURNTABLE MOTOR
CN951
TM-125 BOARD
(SEE PAGE 4-62)

05

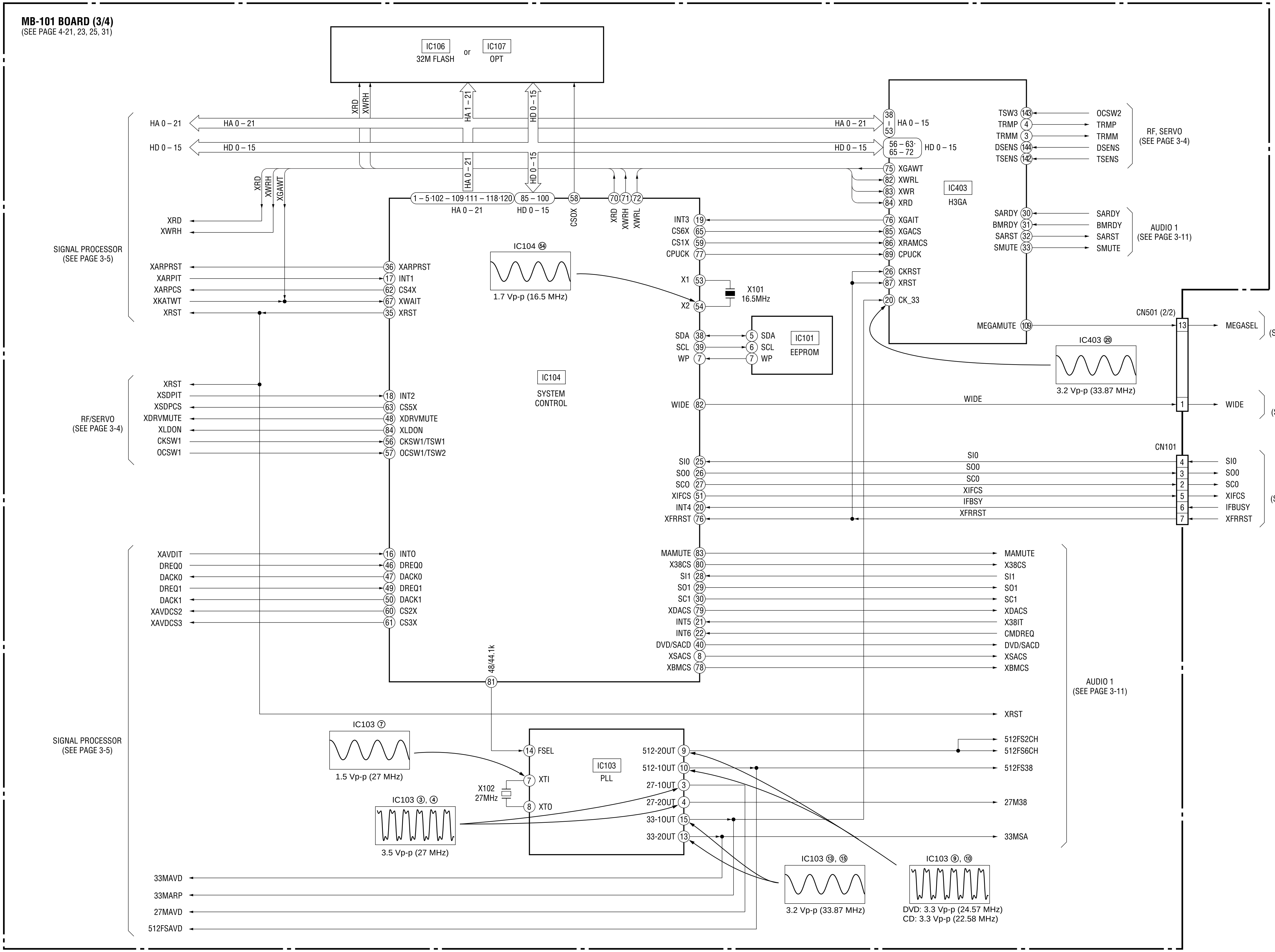
3-3. SIGNAL PROCESS BLOCK DIAGRAM


MB-101 BOARD (2/4)
(SEE PAGE 4-13, 15, 17)
IC303
16M DRAM
MEMA 0 – 9
MEMD 0 – 15
OE, WE, RAS
LCAS, UCAS
27 – 36
MA 0 – 9
44 – 51·
53 – 60
MD 0 – 15
38·39·
41·42
IC302 ⑪ (DVD play)
500 mV/DIV 100 ns/DIV
1.4 Vp-p
IC302 ⑪ (CD play)
500 mV/DIV 200 ns/DIV
1.4 Vp-p
RF/SERVO
(SEE PAGE 3-4)
RF+
RFIN1
RFIN2
PCLK
WSAD 0 – 7
SDI 0 – 7
XSRQ
XAVSRQ
SDCK, XSHD,
XSAK, SDEF
XSHD
SDCK
XSAK
SDEF
AUDIO 1
(SEE PAGE 3-11)
IC507
64M SDRAM
ADAD 0 – 11
ADDT 0 – 15
A11, CLK, LKE,
LDQM, UDQM,
CS, WE,
CAS, RAS
124·125·127·128·
130·131·133·134·
136·137·139·140
SDAD 0 – 11
157 – 160·162 – 165·
167·168·170·171·
173·174·176·177
SDDQ 0 – 15
143·144·146·
147·149·151·
152·154·155
PLCKO
ADO 0 – 7
SD 0 – 7
DTI 0 – 7
XSRQ
IREQO
SDCK
XSHD
XSAK
SDEF
ICLKI
IERRI
ISTARTI
IVALI
IC302 (2/2)
ARP
DATA
BCLK
LRCK
DOUT
CDDATA, CDBCK,
CDLRCK, CDDOUT
CDIN2I
CDIN1I
CDBCKI
CDLRKI
CDDOUT
XARPIT
XARPCS
XKATWT
XINT
XCS
XWAT
XARPRST
33MARP
XARPRST
CLKIN
MCKI
SCKI
XWRH
XRD
XWR
XRD
A 0 – 7
HA 0 – 7
HA 0 – 21
HAD 0 – 21
192·193·
195 – 198·
200 – 203·
205 – 208·
210 – 213·
215 – 218
D 0 – 7
HD 8 – 15
HD 0 – 15
2 – 5·
7 – 10·
232 – 235·
237 – 240
XRD
XWRH
HCSB
HRWB
SYSTEM CONTROL
(SEE PAGE 3-9)
HA 0 – 21
HD 0 – 15
XRST
512FSAVD
33MAVD
XAVDCS2
XAVDCS3
27MAVD
XAVDIT
RSTB
ACLK
CRPCLKI
HAD23
HAD22
CLKI
SCLKIN
HWAITOB
HIREQO
DREQ0
DACK0
DREQ1
DACK1
DM ACK1
DM REQ1
DM ACK0
DM REQ0
226 – 229
XRST
CDDOUT
IC502 ⑲
: EXCEPT AEP, UK
940 mVp-p (H)
IC502 ⑲ : AEP, UK
(LINE : RGB mode)
660 mVp-p (H)
CN501 (1/2)
G OUT
R OUT
B OUT
COMPOUT
Y OUT
C OUT
Y/G
CB/R
CR/B
COMPOUT
YOUT
COUT
Y/G
CB/R
CR/B
V
SY
SC
VIDEO
(SEE PAGE 3-7)
IC502 ⑬
: EXCEPT AEP, UK
620 mVp-p (H)
IC502 ⑬ : AEP, UK
(LINE : RGB mode)
660 mVp-p (H)
IC502 ⑯
: EXCEPT AEP, UK
620 mVp-p (H)
IC502 ⑯ : AEP, UK
(LINE : RGB mode)
660 mVp-p (H)
IC502 ⑰
810 mVp-p (H)
IC502 ⑳
1.1 Vp-p (H)
IC502 ⑭
940 mVp-p (H)
VREFI
RV501
VIDEO
LEVEL
ADJ
IC504
BNR
PDO 0 – 7
102 – 105·
107 – 110
23·24·
26 – 28·
30 – 32
YCIN 0 – 7
PDI 0 – 7
92 – 95·
97 – 100
9 – 11·
14 – 18
YCOUT 0 – 7
IC502
AV DECODER
FLDO
NRSDOUT
NRSENB
HSYNCO
FID
NRSDIN
SCS
H SYNC
IC502 ⑱
3.2 Vp-p (H)
CK27
MRST
D1CLKO
27MVGA32
ACH12
ACH34
ACH56
LRCKO
BCKO
DSP1ACKI0
DSP1ACKI1
ACH12
ACH34
ACH56
LRCK
BCK
38ACK0
38ACK1
AUDIO 1
(SEE PAGE 3-11)
05

3-4. VIDEO BLOCK DIAGRAM

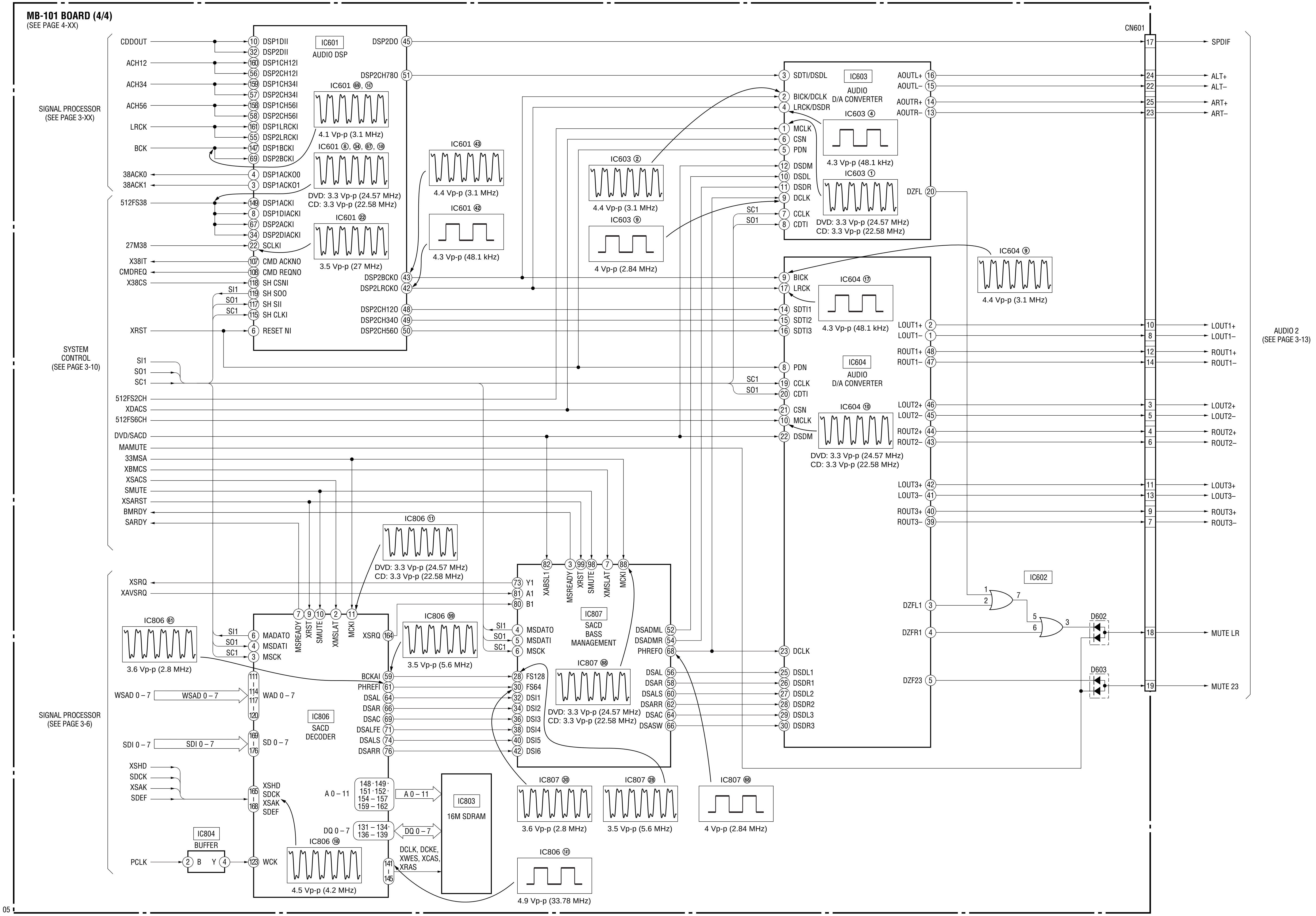

AV-60 BOARD (1/3)
(SEE PAGE 4-39)
SIGNAL PROCESSOR
(SEE PAGE 3-6)
V
SY
SC
Y/G
CB/R
CR/B
CN102 (1/2)
12
8
10
6
4
2
13
IC103
VIDEO BUFFER
2 VIDEO IN
VIDEO OUT 27
6 Y IN
Y OUT 23
4 C IN
C OUT 25
7 MUTE1
8 MUTE2
9 Y IN
Y OUT 20
11 Cb IN
Cb OUT 18
13 Cr IN
Cr OUT 16
Y
Cb
Cr
IC103 ㉗
2.4 Vp-p (H)
IC103 ㉓
2.0 Vp-p (H)
IC103 ㉕
1.8 Vp-p (H)
IC103 ⑱
1.3 Vp-p (H)
IC103 ⑳
2.0 Vp-p (H)
IC103 ⑯
1.3 Vp-p (H)
J105 (1/2)
VIDEO 1
VIDEO 2
LINE OUT
J102
S VIDEO OUT 1
S VIDEO OUT 2
J103
Y
CB
CR
COMPONENT
VIDEO OUT
SYSTEM CONTROL
(SEE PAGE 3-10)
WIDE
Q102, 103
WIDE SWITCH
INTERFACE
CONTROL
(SEE PAGE 3-15)
VMUTE
05

3-5. SYSTEM CONTROL BLOCK DIAGRAM

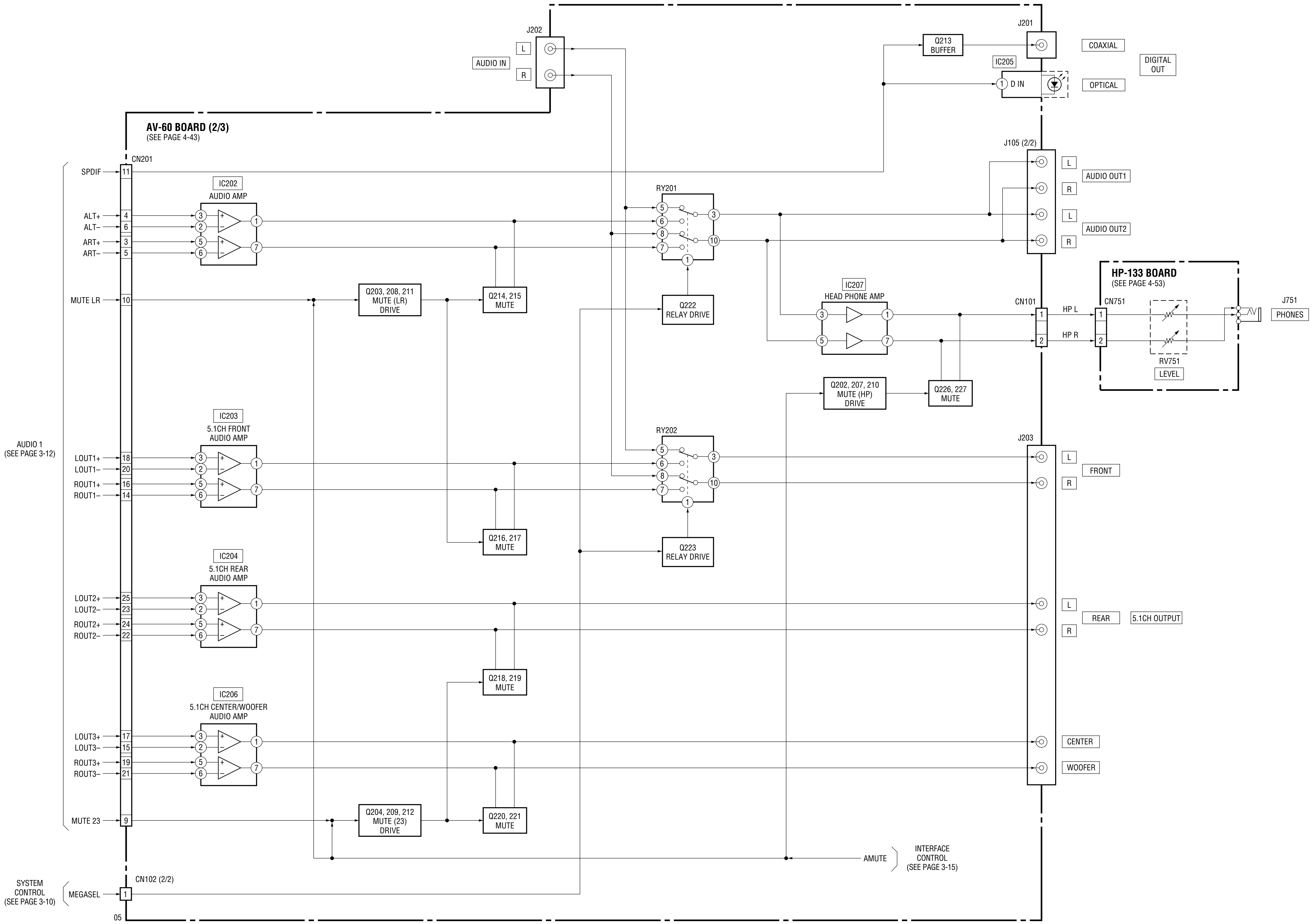

MB-101 BOARD (3/4)
(SEE PAGE 4-21, 23, 25, 31)
IC106
32M FLASH
or
IC107
OPT
XRD
XWRH
HA 1 – 21
HD 0 – 15
HA 0 – 21
HD 0 – 15
XRD
XWRH
XGAWT
1 – 5·102 – 109·111 – 118·120
HA 0 – 21
85 – 100
HD 0 – 15
58
CSOX
70
71
72
XRD
XWRH
XWRL
38 – 53
HA 0 – 15
56 – 63·65 – 72
HD 0 – 15
75 XGAWT
82 XWRL
83 XWR
84 XRD
IC403
H3GA
TSW3 143
TRMP 4
TRMM 3
DSENS 144
TSENS 142
OCSW2
TRMP
TRMM
DSENS
TSENS
RF, SERVO
(SEE PAGE 3-4)
SARDY 30
BMRDY 31
SARST 32
SMUTE 33
SARDY
BMRDY
SARST
SMUTE
AUDIO 1
(SEE PAGE 3-11)
76 XGAIT
85 XGACS
86 XRAMCS
89 CPUCK
26 CKRST
87 XRST
20 CK_33
MEGAMUTE 109
CN501 (2/2)
13
MEGASEL
AUDIO 2
(SEE PAGE 3-13)
IC403 ⑳
3.2 Vp-p (33.87 MHz)
1
WIDE
WIDE
VIDEO
(SEE PAGE 3-7)
SIGNAL PROCESSOR
(SEE PAGE 3-5)
XRD
XWRH
XARPRST
XARPIT
XARPCS
XKATWT
XRST
36 XARPRST
17 INT1
62 CS4X
67 XWAIT
35 XRST
INT3 19
CS6X 65
CS1X 59
CPUCK 77
IC104 (54)
1.7 Vp-p (16.5 MHz)
X1 53
X2 54
X101
16.5MHz
SDA 38
SCL 39
WP 7
5 SDA
6 SCL
7 WP
IC101
EEPROM
IC104
SYSTEM
CONTROL
WIDE 82
RF/SERVO
(SEE PAGE 3-4)
XRST
XSDPIT
XSDPCS
XDRVMUTE
XLDON
CKSW1
OCSW1
18 INT2
63 CS5X
48 XDRVMUTE
84 XLDON
56 CKSW1/TSW1
57 OCSW1/TSW2
CN101
SI0 25
SO0 26
SC0 27
XIFCS 51
INT4 20
XFRRST 76
SI0
SO0
SC0
XIFCS
IFBSY
XFRRST
4
3
2
5
6
7
SI0
SO0
SC0
XIFCS
IFBUSY
XFRRST
INTERFACE
CONTROL
(SEE PAGE 3-15)
XAVDIT
DREQ0
DACK0
DREQ1
DACK1
XAVDCS2
XAVDCS3
16 INT0
46 DREQ0
47 DACK0
49 DREQ1
50 DACK1
60 CS2X
61 CS3X
MAMUTE 83
X38CS 80
SI1 28
SO1 29
SC1 30
XDACS 79
INT5 21
INT6 22
DVD/SACD 40
XSACS 8
XBMCS 78
MAMUTE
X38CS
SI1
SO1
SC1
XDACS
X38IT
CMDREQ
DVD/SACD
XSACS
XBMCS
AUDIO 1
(SEE PAGE 3-11)
48/44.1k
81
XRST
SIGNAL PROCESSOR
(SEE PAGE 3-5)
IC103 ⑦
1.5 Vp-p (27 MHz)
14 FSEL
7 XTI
8 XTO
X102
27MHz
IC103
PLL
512-2OUT 9
512-1OUT 10
27-1OUT 3
27-2OUT 4
33-1OUT 15
33-2OUT 13
512FS2CH
512FS6CH
512FS38
27M38
33MSA
IC103 ③, ④
3.5 Vp-p (27 MHz)
IC103 ⑬, ⑮
3.2 Vp-p (33.87 MHz)
IC103 ⑨, ⑩
DVD: 3.3 Vp-p (24.57 MHz)
CD: 3.3 Vp-p (22.58 MHz)
33MAVD
33MARP
27MAVD
512FSAVD

05

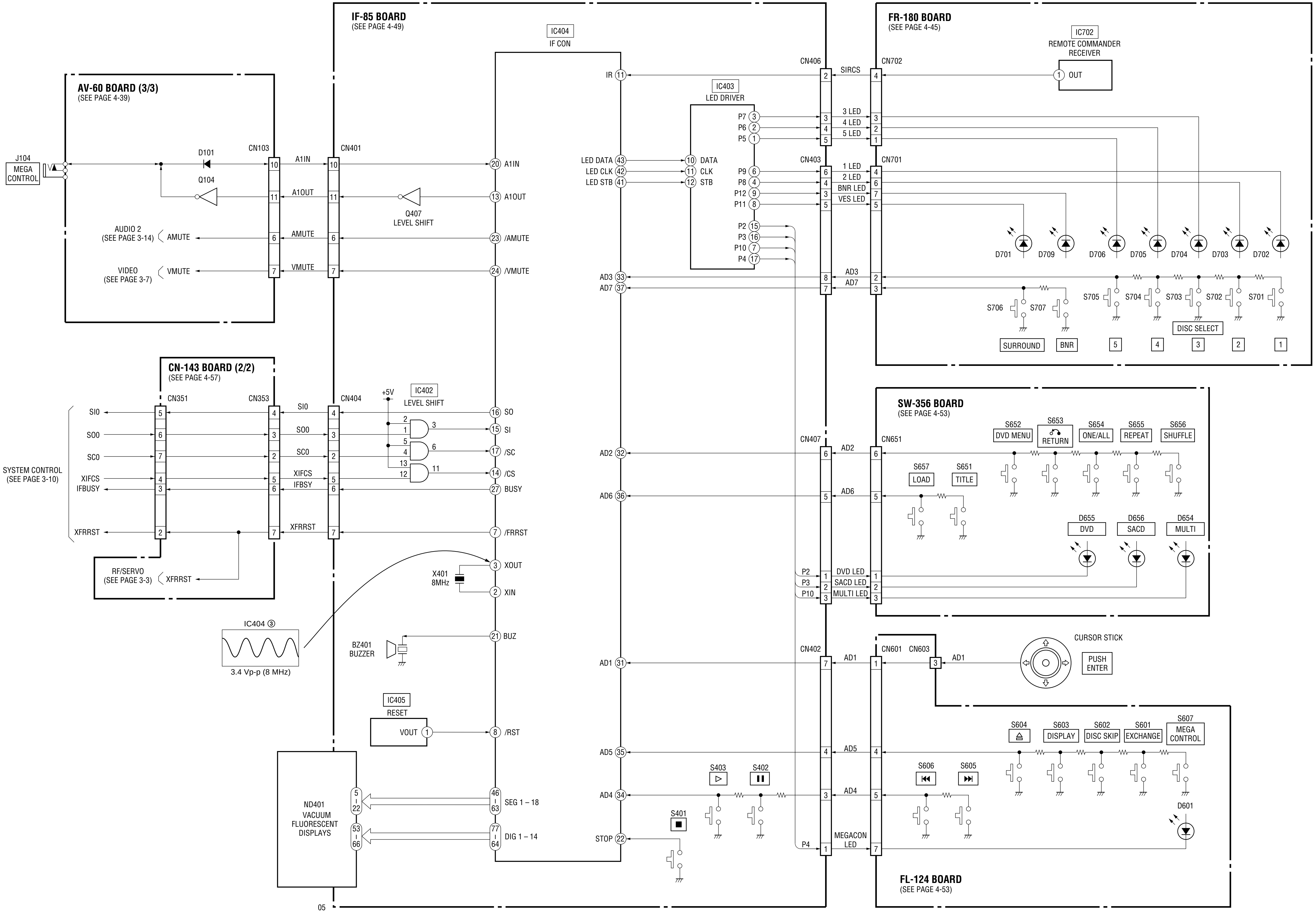
3-6. AUDIO (1) BLOCK DIAGRAM


MB-101 BOARD (4/4)
(SEE PAGE 4-XX)
SIGNAL PROCESSOR (SEE PAGE 3-XX)
SYSTEM CONTROL (SEE PAGE 3-10)
SIGNAL PROCESSOR (SEE PAGE 3-6)
AUDIO 2 (SEE PAGE 3-13)
CDDOUT
ACH12
ACH34
ACH56
LRCK
BCK
38ACK0
38ACK1
512FS38
27M38
X38IT
CMDREQ
X38CS
XRST
SI1
SO1
SC1
512FS2CH
XDACS
512FS6CH
DVD/SACD
MAMUTE
33MSA
XBMCS
XSACS
SMUTE
XSARST
BMRDY
SARDY
XSRQ
XAVSRQ
WSAD 0 – 7
SDI 0 – 7
XSHD
SDCK
XSAK
SDEF
PCLK
IC601
AUDIO DSP
DSP1DII
DSP2DII
DSP1CH12I
DSP2CH12I
DSP1CH34I
DSP2CH34I
DSP1CH56I
DSP2CH56I
DSP1LRCKI
DSP2LRCKI
DSP1BCKI
DSP2BCKI
DSP1ACKO0
DSP1ACKO1
DSP1ACKI
DSP1DIACKI
DSP2ACKI
DSP2DIACKI
SCLKI
CMD ACKNO
CMD REQNO
SH CSNI
SH SOO
SH SII
SH CLKI
RESET NI
DSP2DO
DSP2CH780
DSP2BCKO
DSP2LRCKO
DSP2CH120
DSP2CH340
DSP2CH560
IC601 (69), (141)
4.1 Vp-p (3.1 MHz)
IC601 ⑧, (34), (67), (118)
DVD: 3.3 Vp-p (24.57 MHz)
CD: 3.3 Vp-p (22.58 MHz)
IC601 (22)
3.5 Vp-p (27 MHz)
IC601 (43)
4.4 Vp-p (3.1 MHz)
IC601 (42)
4.3 Vp-p (48.1 kHz)
IC603 ②
4.4 Vp-p (3.1 MHz)
IC603 ⑨
4 Vp-p (2.84 MHz)
IC603
AUDIO D/A CONVERTER
SDTI/DSDL
BICK/DCLK
LRCK/DSDR
MCLK
CSN
PDN
DSDM
DSDL
DSDR
DCLK
CCLK
CDTI
AOUTL+
AOUTL–
AOUTR+
AOUTR–
DZFL
IC603 ④
4.3 Vp-p (48.1 kHz)
IC603 ①
DVD: 3.3 Vp-p (24.57 MHz)
CD: 3.3 Vp-p (22.58 MHz)
IC604 ⑨
4.4 Vp-p (3.1 MHz)
IC604
AUDIO D/A CONVERTER
BICK
LRCK
SDTI1
SDTI2
SDTI3
PDN
CCLK
CDTI
CSN
MCLK
DSDM
IC604 (17)
4.3 Vp-p (48.1 kHz)
IC604 ⑩
DVD: 3.3 Vp-p (24.57 MHz)
CD: 3.3 Vp-p (22.58 MHz)
LOUT1+
LOUT1–
ROUT1+
ROUT1–
LOUT2+
LOUT2–
ROUT2+
ROUT2–
LOUT3+
LOUT3–
ROUT3+
ROUT3–
DCLK
DSDL1
DSDR1
DSDL2
DSDR2
DSDL3
DSDR3
DZFL1
DZFR1
DZF23
IC602
D602
D603
CN601
SPDIF
ALT+
ALT–
ART+
ART–
LOUT1+
LOUT1–
ROUT1+
ROUT1–
LOUT2+
LOUT2–
ROUT2+
ROUT2–
LOUT3+
LOUT3–
ROUT3+
ROUT3–
MUTE LR
MUTE 23
IC806 (11)
DVD: 3.3 Vp-p (24.57 MHz)
CD: 3.3 Vp-p (22.58 MHz)
IC807
SACD BASS MANAGEMENT
Y1
A1
B1
XABSL1
MSREADY
XRST
SMUTE
XSLAT
MCKI
MSDATO
MSDATI
MSCK
FS128
FS64
DSI1
DSI2
DSI3
DSI4
DSI5
DSI6
DSADML
DSADMR
PHREFO
DSAL
DSAR
DSALS
DSARR
DSAC
DSASW
IC807 (88)
DVD: 3.3 Vp-p (24.57 MHz)
CD: 3.3 Vp-p (22.58 MHz)
IC806 (61)
3.6 Vp-p (2.8 MHz)
IC806 (59)
3.5 Vp-p (5.6 MHz)
IC806
SACD DECODER
MADATO
MSDATI
MSCK
MSREADY
XRST
SMUTE
XSMLAT
MCKI
XSRQ
BCKAI
PHREFI
DSAL
DSAR
DSAC
DSALFE
DSALS
DSARR
WAD 0 – 7
SD 0 – 7
XSHD
SDCK
XSAK
SDEF
WCK
A 0 – 11
148 · 149 · 151 · 152 · 154 – 157 159 – 162
DQ 0 – 7
131 – 134 · 136 – 139
DCLK, DCKE, XWES, XCAS, XRAS
IC803
16M SDRAM
IC804
BUFFER
IC806 (16)
4.5 Vp-p (4.2 MHz)
IC807 (30)
3.6 Vp-p (2.8 MHz)
IC807 (28)
3.5 Vp-p (5.6 MHz)
IC807 (68)
4 Vp-p (2.84 MHz)
IC806 (141)
4.9 Vp-p (33.78 MHz)
05

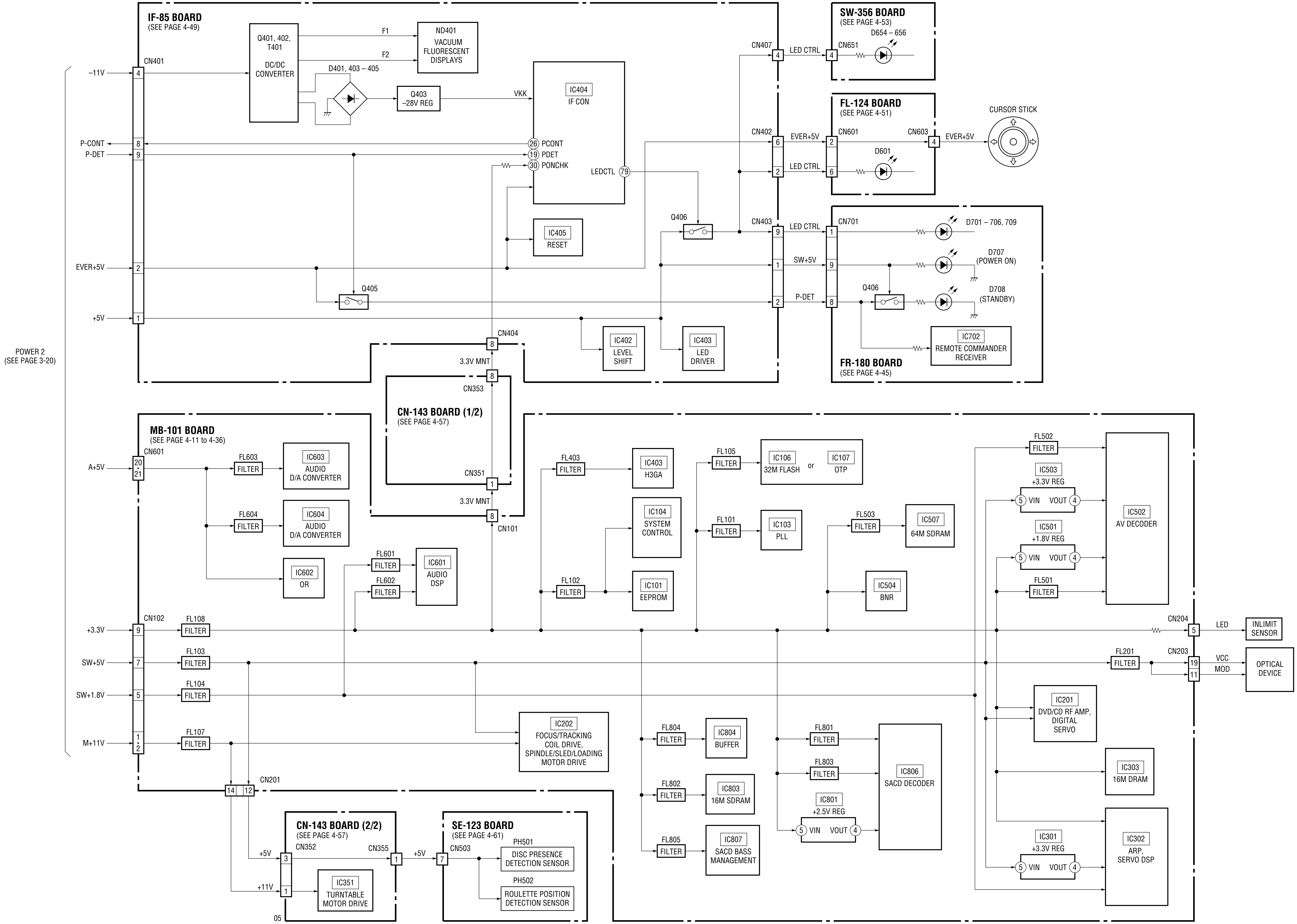
3-7. AUDIO (2) BLOCK DIAGRAM


J202
L
R
AUDIO IN
J201
Q213
BUFFER
COAXIAL
DIGITAL
OUT
IC205
D IN
OPTICAL
AV-60 BOARD (2/3)
(SEE PAGE 4-43)
CN201
SPDIF
J105 (2/2)
L
R
AUDIO OUT1
L
R
AUDIO OUT2
IC202
AUDIO AMP
ALT+
ALT–
ART+
ART–
RY201
HP-133 BOARD
(SEE PAGE 4-53)
IC207
HEAD PHONE AMP
CN101
CN751
J751
HP L
HP R
PHONES
RV751
LEVEL
MUTE LR
Q203, 208, 211
MUTE (LR)
DRIVE
Q214, 215
MUTE
Q222
RELAY DRIVE
Q202, 207, 210
MUTE (HP)
DRIVE
Q226, 227
MUTE
IC203
5.1CH FRONT
AUDIO AMP
RY202
J203
L
FRONT
R
AUDIO 1
(SEE PAGE 3-12)
LOUT1+
LOUT1–
ROUT1+
ROUT1–
Q216, 217
MUTE
Q223
RELAY DRIVE
IC204
5.1CH REAR
AUDIO AMP
LOUT2+
LOUT2–
ROUT2+
ROUT2–
L
REAR
5.1CH OUTPUT
R
Q218, 219
MUTE
IC206
5.1CH CENTER/WOOFER
AUDIO AMP
LOUT3+
LOUT3–
ROUT3+
ROUT3–
CENTER
WOOFER
MUTE 23
Q204, 209, 212
MUTE (23)
DRIVE
Q220, 221
MUTE
AMUTE
INTERFACE
CONTROL
(SEE PAGE 3-15)
SYSTEM
CONTROL
(SEE PAGE 3-10)
MEGASEL
CN102 (2/2)
05

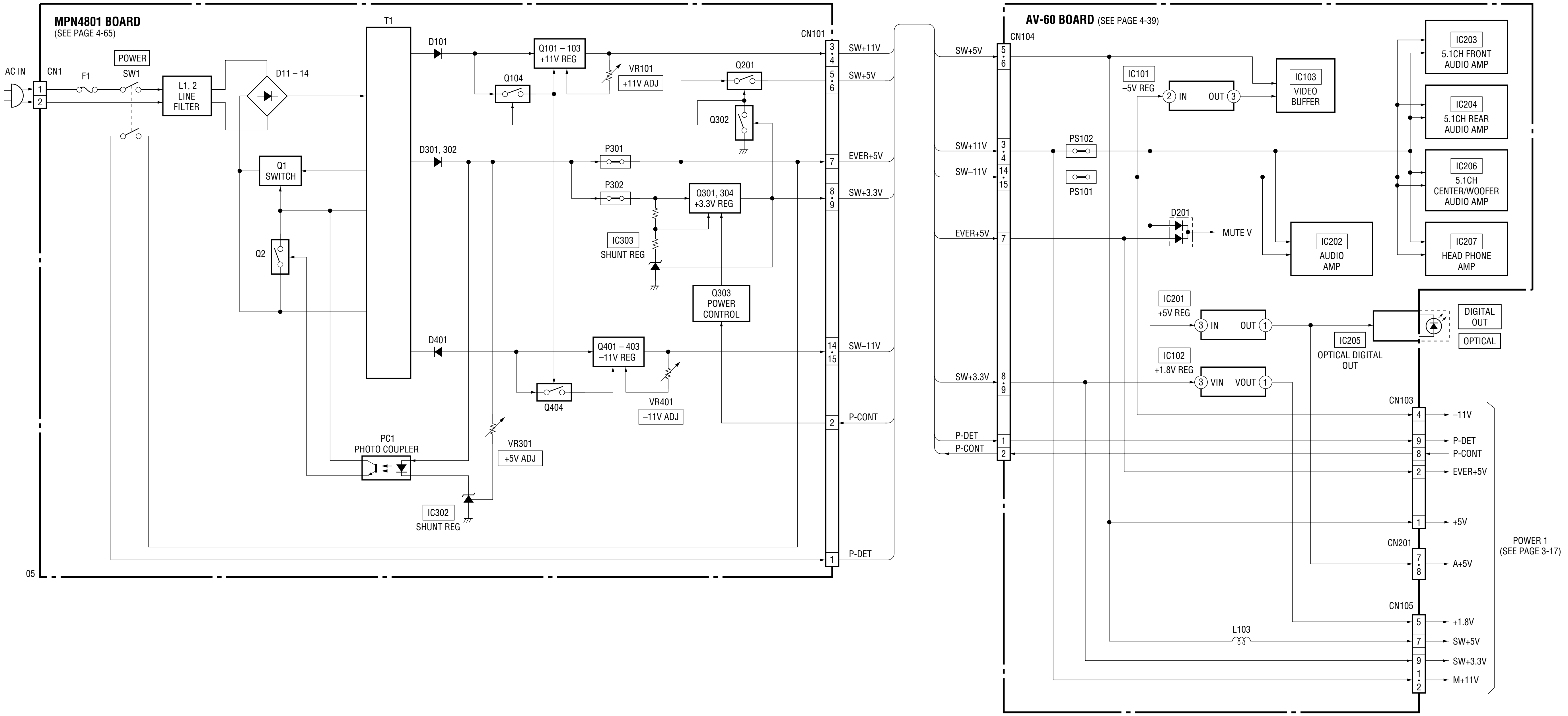
3-8. INTERFACE CONTROL BLOCK DIAGRAM


IF-85 BOARD
(SEE PAGE 4-49)
IC404
IF CON
AV-60 BOARD (3/3)
(SEE PAGE 4-39)
J104
MEGA CONTROL
D101
Q104
CN103
CN401
A1IN
A1OUT
AMUTE
VMUTE
AUDIO 2
(SEE PAGE 3-14)
VIDEO
(SEE PAGE 3-7)
Q407
LEVEL SHIFT
IR
A1IN
A1OUT
/AMUTE
/VMUTE
IC403
LED DRIVER
P7
P6
P5
LED DATA
LED CLK
LED STB
DATA
CLK
STB
P9
P8
P12
P11
P2
P3
P10
P4
AD3
AD7
CN406
SIRCS
3 LED
4 LED
5 LED
CN403
1 LED
2 LED
BNR LED
VES LED
FR-180 BOARD
(SEE PAGE 4-45)
IC702
REMOTE COMMANDER RECEIVER
OUT
CN702
CN701
D701
D709
D706
D705
D704
D703
D702
S706
S707
S705
S704
S703
S702
S701
SURROUND
BNR
DISC SELECT
5
4
3
2
1
CN-143 BOARD (2/2)
(SEE PAGE 4-57)
CN351
CN353
CN404
SYSTEM CONTROL
(SEE PAGE 3-10)
SI0
SO0
SC0
XIFCS
IFBUSY
XFRRST
RF/SERVO
(SEE PAGE 3-3)
+5V
IC402
LEVEL SHIFT
SO
SI
/SC
/CS
BUSY
/FRRST
XOUT
XIN
X401
8MHz
IC404 ③
3.4 Vp-p (8 MHz)
BZ401
BUZZER
BUZ
IC405
RESET
VOUT
/RST
ND401
VACUUM FLUORESCENT DISPLAYS
SEG 1 – 18
DIG 1 – 14
05
AD2
AD6
AD1
AD5
AD4
STOP
CN407
SW-356 BOARD
(SEE PAGE 4-53)
CN651
S652
DVD MENU
S653
RETURN
S654
ONE/ALL
S655
REPEAT
S656
SHUFFLE
S657
LOAD
S651
TITLE
D655
DVD
D656
SACD
D654
MULTI
DVD LED
SACD LED
MULTI LED
CN402
CN601
CN603
CURSOR STICK
PUSH ENTER
S604
S603
DISPLAY
S602
DISC SKIP
S601
EXCHANGE
S607
MEGA CONTROL
S606
S605
S403
S402
S401
D601
MEGACON LED
FL-124 BOARD
(SEE PAGE 4-53)

3-9. POWER (1) BLOCK DIAGRAM


IF-85 BOARD
(SEE PAGE 4-49)
CN401
Q401, 402, T401
DC/DC CONVERTER
F1
F2
ND401
VACUUM FLUORESCENT DISPLAYS
D401, 403 – 405
Q403
–28V REG
VKK
IC404
IF CON
26 PCONT
19 PDET
30 PONCHK
LEDCTL 79
IC405
RESET
Q406
Q405
CN404
IC402
LEVEL SHIFT
IC403
LED DRIVER
CN407
CN402
CN403
LED CTRL
EVER+5V
SW+5V
P-DET
SW-356 BOARD
(SEE PAGE 4-53)
CN651
D654 – 656
FL-124 BOARD
(SEE PAGE 4-51)
CN601
CN603
D601
CURSOR STICK
CN701
D701 – 706, 709
D707
(POWER ON)
D708
(STANDBY)
IC702
REMOTE COMMANDER RECEIVER
FR-180 BOARD
(SEE PAGE 4-45)
–11V
P-CONT
P-DET
EVER+5V
+5V
POWER 2
(SEE PAGE 3-20)
3.3V MNT
CN353
CN-143 BOARD (1/2)
(SEE PAGE 4-57)
CN351
CN101
MB-101 BOARD
(SEE PAGE 4-11 to 4-36)
A+5V
FL603
FILTER
IC603
AUDIO D/A CONVERTER
FL604
IC604
IC602
OR
FL601
FL602
IC601
AUDIO DSP
CN102
+3.3V
SW+5V
SW+1.8V
M+11V
FL108
FL103
FL104
FL107
FL403
IC403
H3GA
IC104
SYSTEM CONTROL
FL102
IC101
EEPROM
FL105
IC106
32M FLASH
or
IC107
OTP
FL101
IC103
PLL
FL503
IC507
64M SDRAM
IC504
BNR
FL502
IC503
+3.3V REG
5 VIN VOUT 4
IC501
+1.8V REG
FL501
IC502
AV DECODER
CN204
LED
INLIMIT SENSOR
FL201
CN203
VCC
MOD
OPTICAL DEVICE
IC202
FOCUS/TRACKING COIL DRIVE, SPINDLE/SLED/LOADING MOTOR DRIVE
FL804
IC804
BUFFER
FL802
IC803
16M SDRAM
FL805
IC807
SACD BASS MANAGEMENT
FL801
FL803
IC801
+2.5V REG
IC806
SACD DECODER
IC201
DVD/CD RF AMP, DIGITAL SERVO
IC303
16M DRAM
IC301
+3.3V REG
IC302
ARP, SERVO DSP
CN201
CN-143 BOARD (2/2)
(SEE PAGE 4-57)
CN352
CN355
+5V
+11V
IC351
TURNTABLE MOTOR DRIVE
SE-123 BOARD
(SEE PAGE 4-61)
CN503
PH501
DISC PRESENCE DETECTION SENSOR
PH502
ROULETTE POSITION DETECTION SENSOR
05

3-10. POWER (2) BLOCK DIAGRAM


MPN4801 BOARD
(SEE PAGE 4-65)
AC IN
CN1
1
2
F1
POWER
SW1
L1, 2
LINE
FILTER
D11 – 14
Q1
SWITCH
Q2
T1
D101
Q101 – 103
+11V REG
VR101
+11V ADJ
Q104
Q201
Q302
D301, 302
P301
P302
Q301, 304
+3.3V REG
IC303
SHUNT REG
Q303
POWER
CONTROL
D401
Q401 – 403
–11V REG
Q404
VR401
–11V ADJ
PC1
PHOTO COUPLER
VR301
+5V ADJ
IC302
SHUNT REG
CN101
SW+11V
SW+5V
EVER+5V
SW+3.3V
SW–11V
P-CONT
P-DET
05
AV-60 BOARD (SEE PAGE 4-39)
CN104
SW+5V
SW+11V
SW–11V
EVER+5V
SW+3.3V
P-DET
P-CONT
IC101
–5V REG
IN
OUT
IC103
VIDEO
BUFFER
PS102
PS101
D201
MUTE V
IC202
AUDIO
AMP
IC203
5.1CH FRONT
AUDIO AMP
IC204
5.1CH REAR
AUDIO AMP
IC206
5.1CH
CENTER/WOOFER
AUDIO AMP
IC207
HEAD PHONE
AMP
IC201
+5V REG
IN
OUT
IC205
OPTICAL DIGITAL
OUT
DIGITAL
OUT
OPTICAL
IC102
+1.8V REG
VIN
VOUT
CN103
–11V
P-DET
P-CONT
EVER+5V
+5V
CN201
A+5V
CN105
L103
+1.8V
SW+5V
SW+3.3V
M+11V
POWER 1
(SEE PAGE 3-17)

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary mote is printed in each block.)

For printed wiring boards:
- ○—— : indicates a lead wire mounted on the component side.
- ●—— : indicates a lead wire mounted on the printed side.
- ○ : Through hole.
- ▨ : Pattern from the side which enables seeing.

(The other layers' patterns are not indicated.)

Caution:	
Pattern face side: (Side A)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Side B)	Parts on the parts face side seen from the parts face are indicated.

For schematic diagram:
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, $^1/_4$ W (Chip resistors : $^1/_{10}$ W) unless otherwise specified.
  kΩ : 1000Ω, MΩ : 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF 50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- —▭— : nonflammable resistor.
- —▭— : fusible resistor.
- ▭ : panel designation.
- △ : internal component.
- ▭ : adjustment for repair.
- **B +** : B+ Line.
- **B −** : B– Line.
- Circled numbers refer to waveforms.
- Voltages are dc between measurement point.
- Readings are taken with a color-bar signal on DVD reference disc and when playing CD reference disc.
- Readings are taken with a digital multimeter (DC 10MΩ).
- Voltage variations may be noted due to normal production tolerances.

Note:	**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

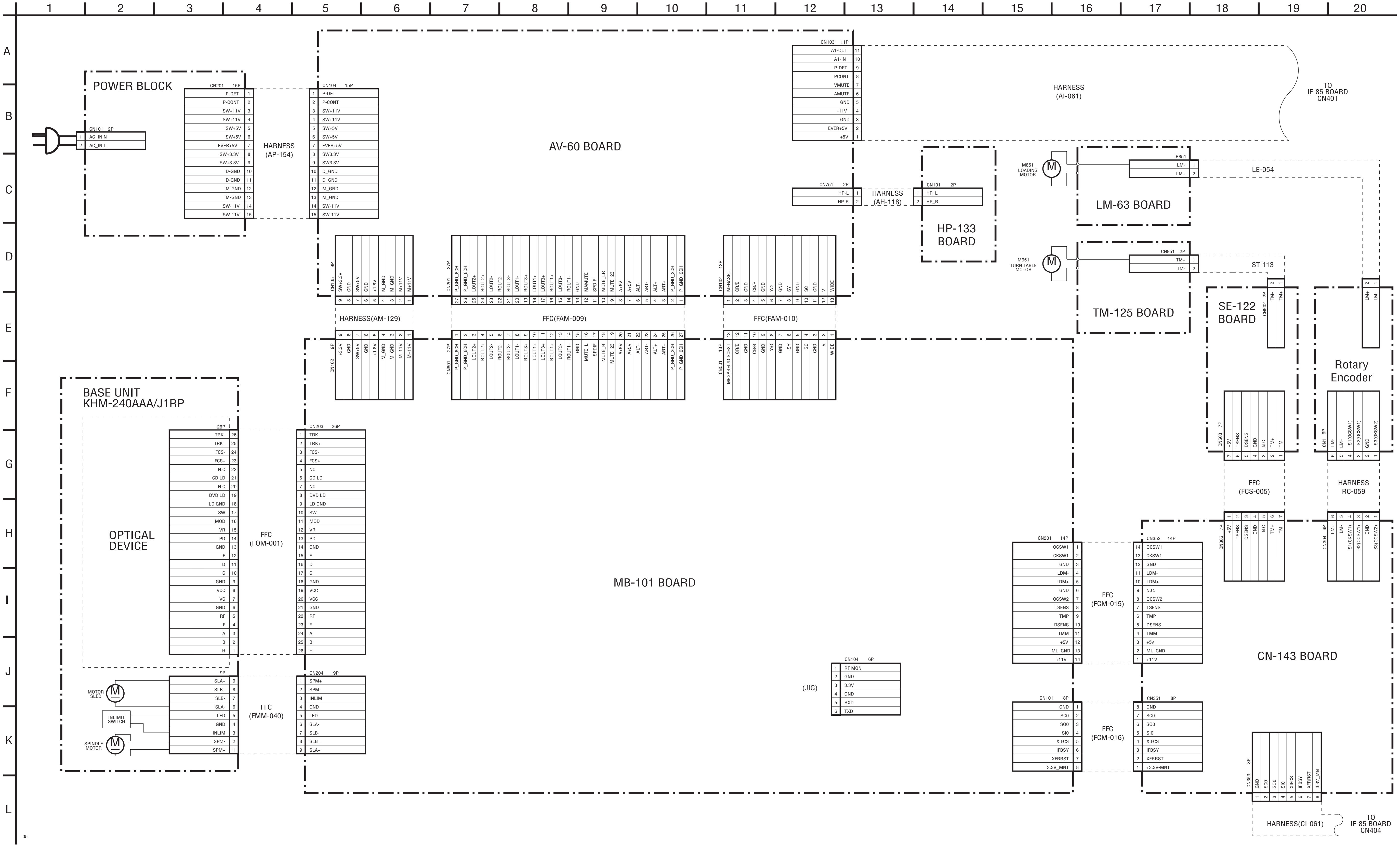
- Description about model name
  DPX14xxBM

Name of production country
M : Malaysia
X : Mexico

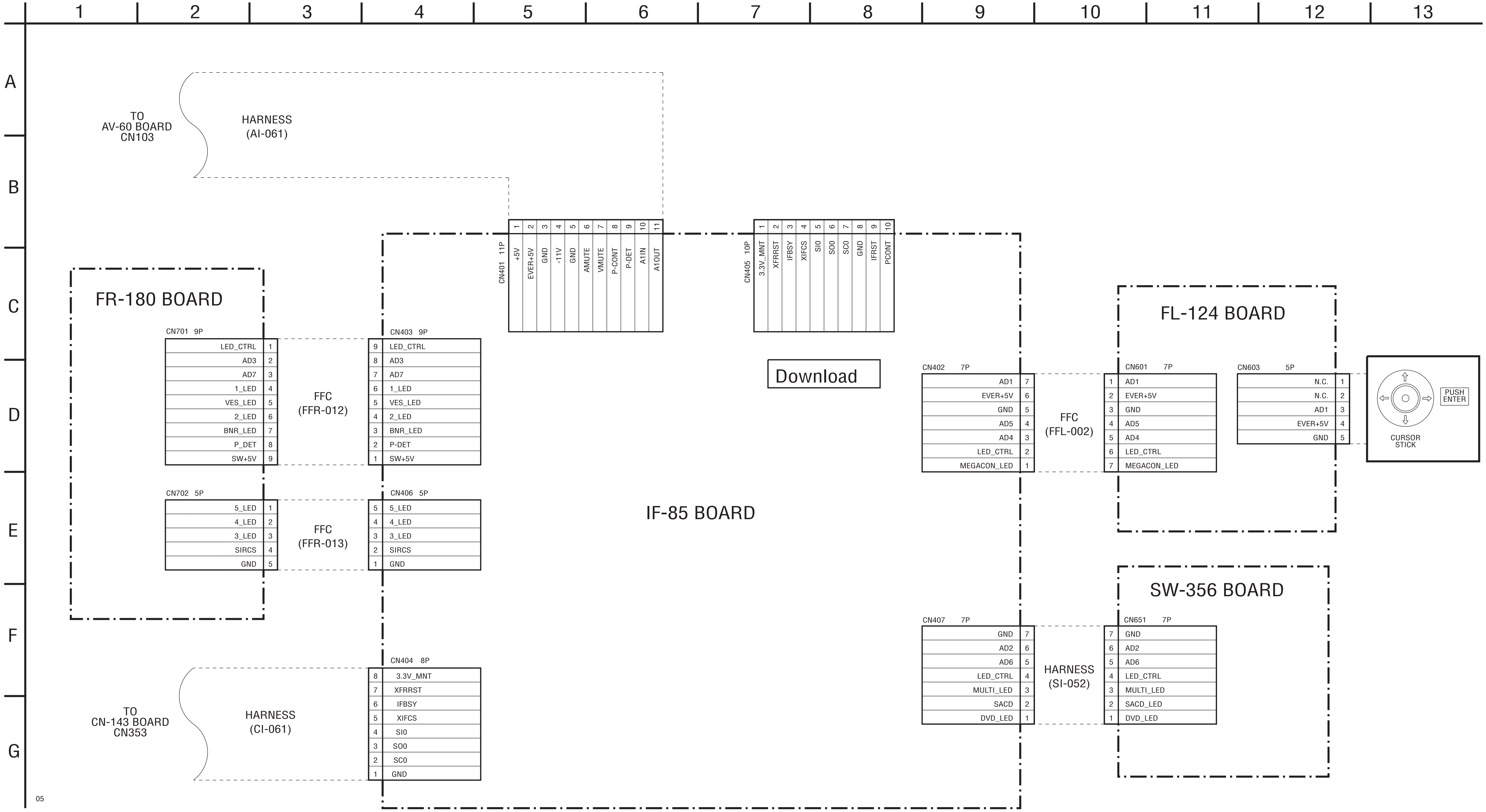
Color of set
B : Black
H : Titanium gray

4-1. FRAME SCHEMATIC DIAGRAM

FRAME (1)


POWER BLOCK
CN101 2P
AC_IN N
AC_IN L
CN201 15P
HARNESS
(AP-154)
CN104 15P
AV-60 BOARD
CN103 11P
HARNESS
(AI-061)
TO
IF-85 BOARD
CN401
CN751 2P
HARNESS
(AH-118)
CN101 2P
HP-133
BOARD
M851
LOADING
MOTOR
B851
LE-054
LM-63 BOARD
M951
TURN TABLE
MOTOR
CN951 2P
ST-113
TM-125 BOARD
SE-122
BOARD
CN502 2P
Rotary
Encoder
CN105 9P
CN201 27P
CN102 13P
HARNESS(AM-129)
FFC(FAM-009)
FFC(FAM-010)
CN102 9P
CN601 27P
CN501 13P
BASE UNIT
KHM-240AAA/J1RP
OPTICAL
DEVICE
26P
FFC
(FOM-001)
CN203 26P
MB-101 BOARD
CN503 7P
CN1 6P
FFC
(FCS-005)
HARNESS
RC-059
CN306 7P
CN304 6P
CN201 14P
FFC
(FCM-015)
CN352 14P
CN-143 BOARD
CN104 6P
(JIG)
MOTOR
SLED
INLIMIT
SWITCH
SPINDLE
MOTOR
9P
FFC
(FMM-040)
CN204 9P
CN101 8P
FFC
(FCM-016)
CN351 8P
CN353 8P
HARNESS(CI-061)
TO
IF-85 BOARD
CN404

FRAME (2)


1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
TO
AV-60 BOARD
CN103
HARNESS
(AI-061)
CN401 11P
1 +5V
2 EVER+5V
3 GND
4 -11V
5 GND
6 AMUTE
7 VMUTE
8 P-CONT
9 P-DET
10 A1IN
11 A1OUT
CN405 10P
1 3.3V_MNT
2 XFRRST
3 IFBSY
4 XIFCS
5 SI0
6 SO0
7 SC0
8 GND
9 IFRST
10 PCONT
FR-180 BOARD
CN701 9P
LED_CTRL 1
AD3 2
AD7 3
1_LED 4
VES_LED 5
2_LED 6
BNR_LED 7
P_DET 8
SW+5V 9
FFC
(FFR-012)
CN403 9P
9 LED_CTRL
8 AD3
7 AD7
6 1_LED
5 VES_LED
4 2_LED
3 BNR_LED
2 P-DET
1 SW+5V
CN702 5P
5_LED 1
4_LED 2
3_LED 3
SIRCS 4
GND 5
FFC
(FFR-013)
CN406 5P
5 5_LED
4 4_LED
3 3_LED
2 SIRCS
1 GND
IF-85 BOARD
Download
CN402 7P
AD1 7
EVER+5V 6
GND 5
AD5 4
AD4 3
LED_CTRL 2
MEGACON_LED 1
FFC
(FFL-002)
FL-124 BOARD
CN601 7P
1 AD1
2 EVER+5V
3 GND
4 AD5
5 AD4
6 LED_CTRL
7 MEGACON_LED
CN603 5P
N.C. 1
N.C. 2
AD1 3
EVER+5V 4
GND 5
PUSH
ENTER
CURSOR
STICK
SW-356 BOARD
CN407 7P
GND 7
AD2 6
AD6 5
LED_CTRL 4
MULTI_LED 3
SACD 2
DVD_LED 1
HARNESS
(SI-052)
CN651 7P
7 GND
6 AD2
5 AD6
4 LED_CTRL
3 MULTI_LED
2 SACD_LED
1 DVD_LED
TO
CN-143 BOARD
CN353
HARNESS
(CI-061)
CN404 8P
8 3.3V_MNT
7 XFRRST
6 IFBSY
5 XIFCS
4 SI0
3 SO0
2 SC0
1 GND
05

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

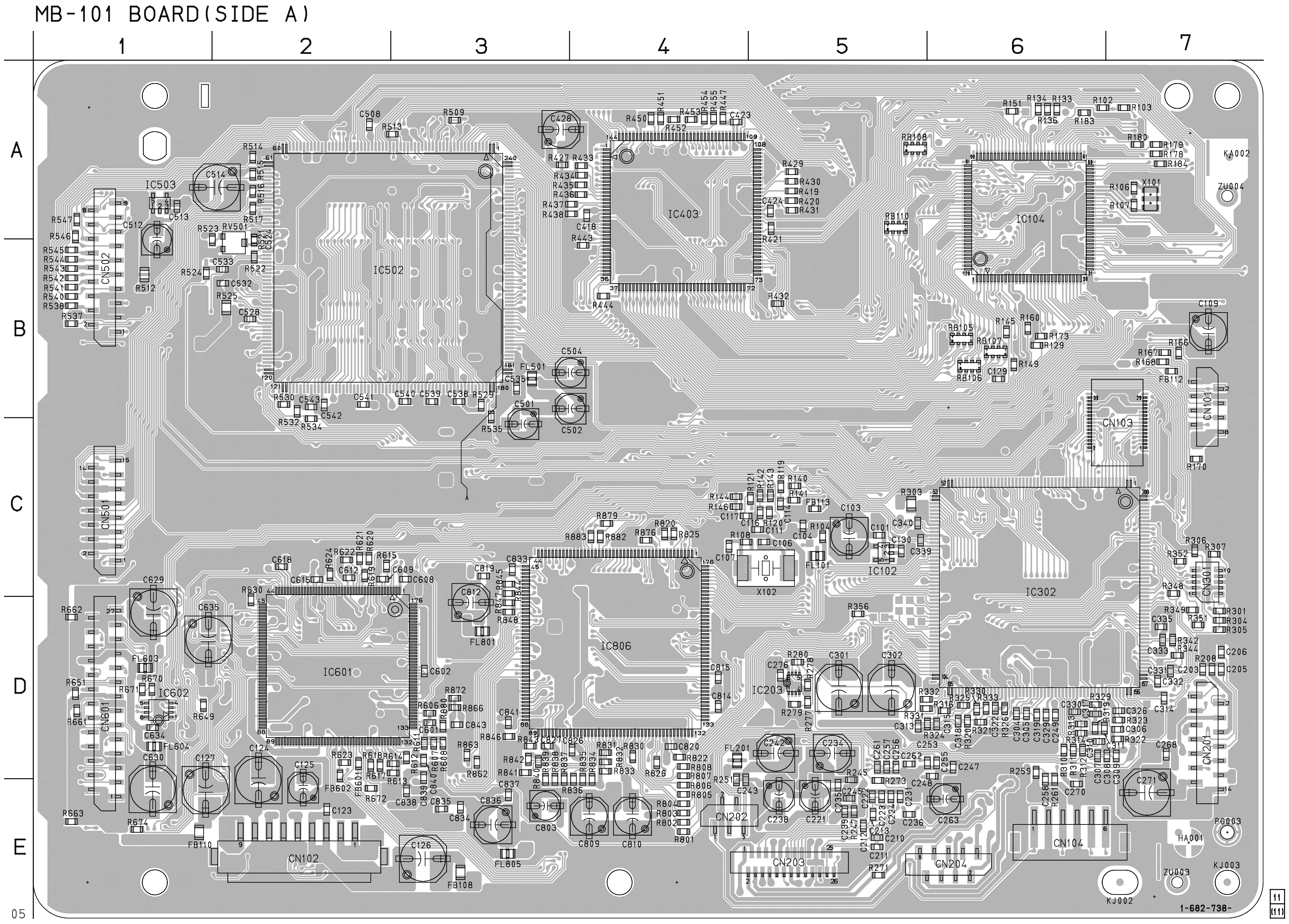
There are a few cases that the part isn't mounted in this model is printed on this diagram.

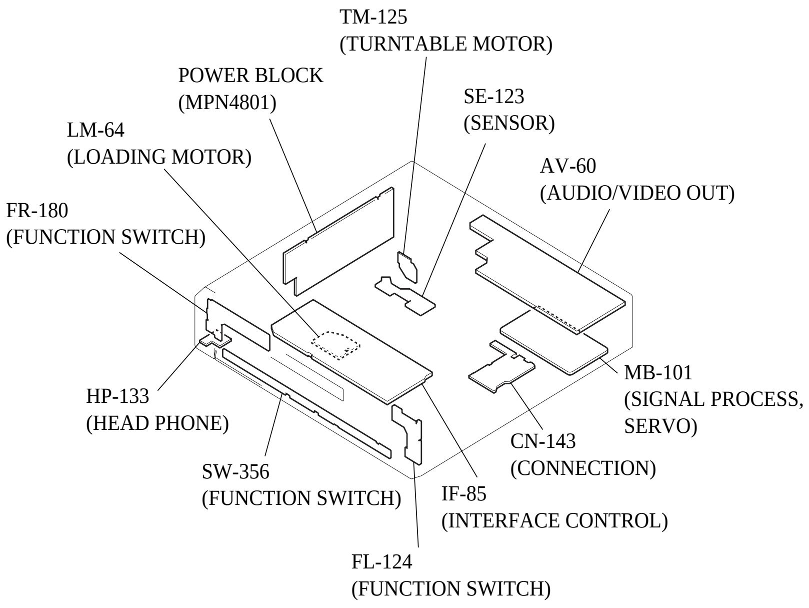
MB-101 (SIGNAL PROCESS, SERVO) PRINTED WIRING BOARD

– Ref. No.: MB-101 board; 2,000 series –

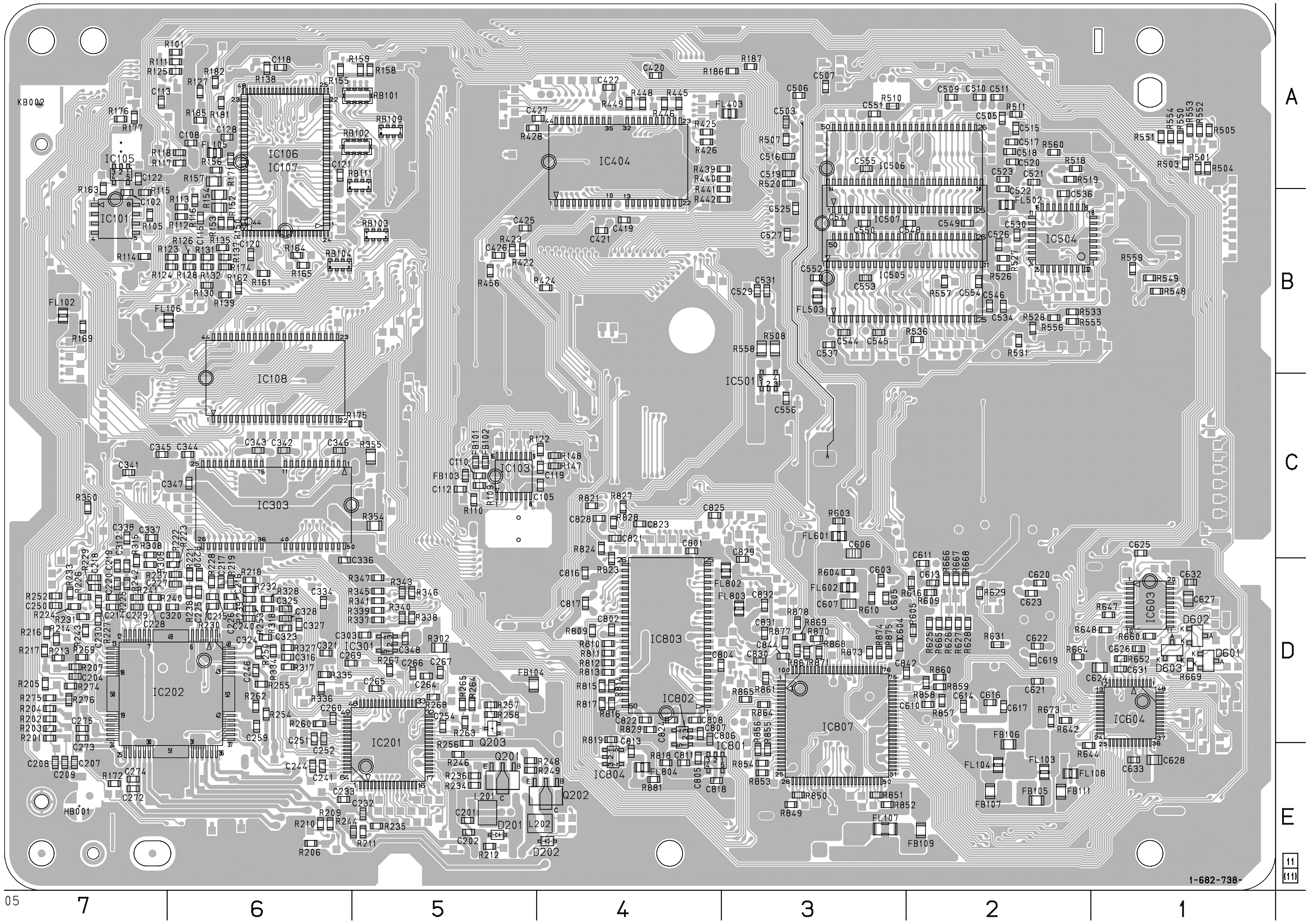
MB-101 BOARD (SIDE A)

CN101	B-7
CN102	E-2
CN103	C-6
CN104	E-6
CN201	D-7
CN203	E-5
CN204	E-6
CN501	C-1
CN601	D-1
IC104	A-6
IC302	D-6
IC403	B-4
IC502	B-2
IC503	A-1
IC601	D-2
IC602	D-1
IC806	D-4
RV501	B-2


MB-101 BOARD(SIDE A)
1
2
3
4
5
6
7
A
B
C
D
E
IC503
IC502
IC403
IC104
IC601
IC602
IC806
IC302
IC203
IC102
CN502
CN501
CN601
CN102
CN103
CN101
CN301
CN201
CN202
CN203
CN204
CN104
05
1-682-738-
11
111


TM-125
(TURNTABLE MOTOR)
POWER BLOCK
(MPN4801)
SE-123
(SENSOR)
LM-64
(LOADING MOTOR)
AV-60
(AUDIO/VIDEO OUT)
FR-180
(FUNCTION SWITCH)
MB-101
(SIGNAL PROCESS,
SERVO)
HP-133
(HEAD PHONE)
CN-143
(CONNECTION)
SW-356
(FUNCTION SWITCH)
IF-85
(INTERFACE CONTROL)
FL-124
(FUNCTION SWITCH)

MB-101 BOARD(SIDE B)


A
B
C
D
E
7
6
5
4
3
2
1
05
1-682-738-
IC101
IC103
IC105
IC106
IC107
IC108
IC201
IC202
IC301
IC303
IC404
IC501
IC504
IC505
IC506
IC507
IC603
IC604
IC801
IC802
IC803
IC804
IC807
Q201
Q202
Q203
D201
D202
D601
D602
D603

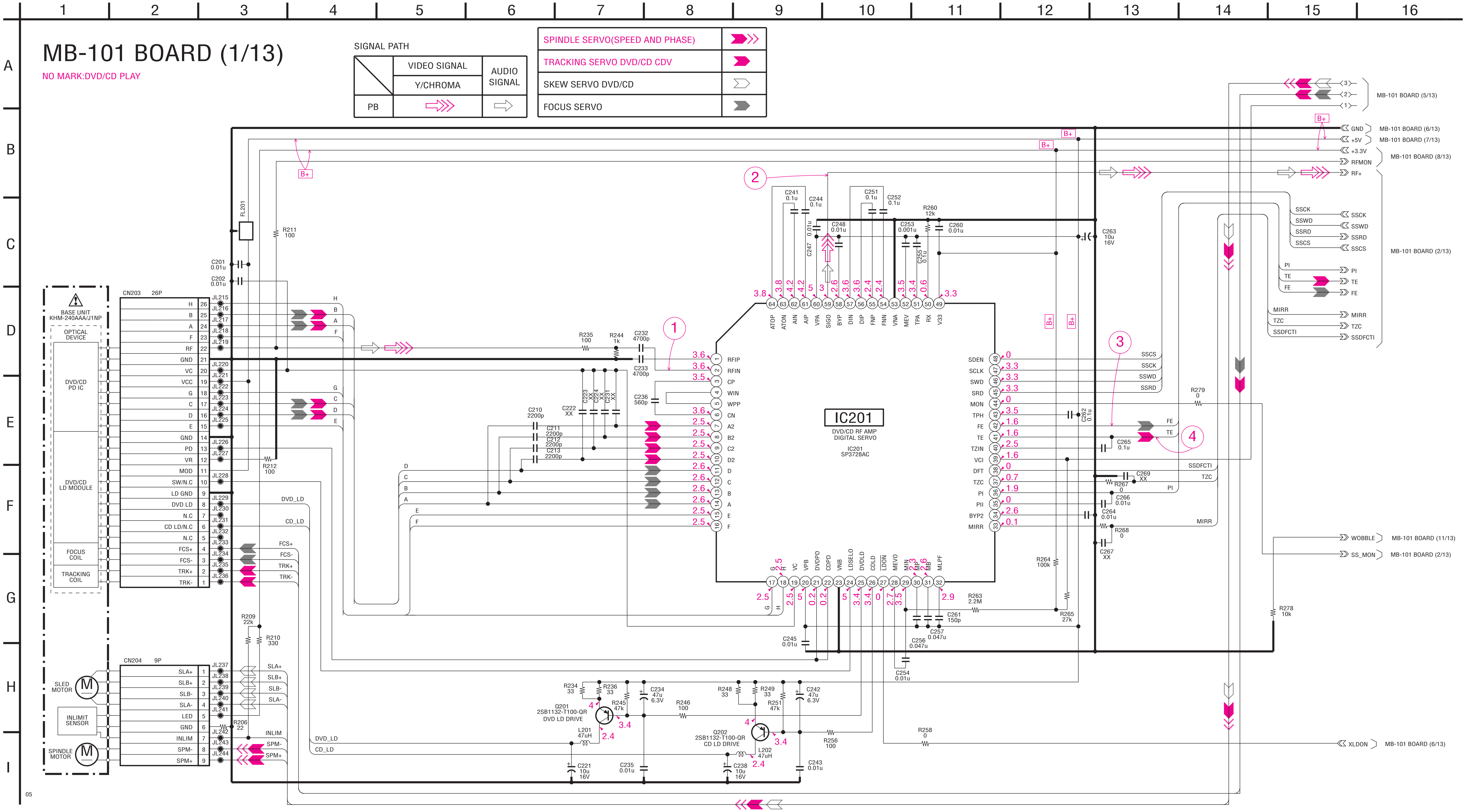
MB-101 BOARD (SIDE B)

D601	D-1
D602	D-1
D603	D-1
IC101	B-7
IC103	C-5
IC106	A-6
IC107	A-6
IC201	D-5
IC202	D-7
IC301	D-5
IC303	C-6
IC501	C-3
IC504	B-2
IC507	B-3
IC603	D-1
IC604	D-1
IC801	E-4
IC803	D-4
IC804	E-4
IC807	D-3
Q201	E-5
Q202	E-4

MB-101 (RF AMP, SERVO) SCHEMATIC DIAGRAM • See page 4-7 for printed wiring board.

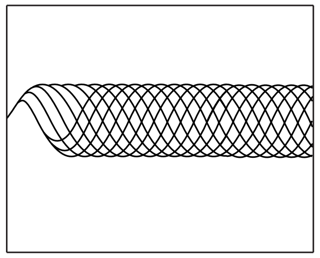
– Ref. No.: MB-101 board; 2,000 series –

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
MB-101 BOARD (1/13)
NO MARK:DVD/CD PLAY
SIGNAL PATH
VIDEO SIGNAL
Y/CHROMA
AUDIO SIGNAL
PB
SPINDLE SERVO(SPEED AND PHASE)
TRACKING SERVO DVD/CD CDV
SKEW SERVO DVD/CD
FOCUS SERVO
BASE UNIT KHM-240AAA/J1NP
OPTICAL DEVICE
DVD/CD PD IC
DVD/CD LD MODULE
FOCUS COIL
TRACKING COIL
CN203 26P
CN204 9P
SLED MOTOR
INLIMIT SENSOR
SPINDLE MOTOR
IC201
DVD/CD RF AMP DIGITAL SERVO
IC201 SP3728AC
Q201 2SB1132-T100-QR DVD LD DRIVE
Q202 2SB1132-T100-QR CD LD DRIVE
FL201
MB-101 BOARD (5/13)
MB-101 BOARD (6/13)
MB-101 BOARD (7/13)
MB-101 BOARD (8/13)
MB-101 BOARD (2/13)
MB-101 BOARD (11/13)
GND
+5V
+3.3V
RFMON
RF+
SSCK
SSWD
SSRD
SSCS
PI
TE
FE
MIRR
TZC
SSDFCTI
WOBBLE
SS_MON
XLDON
B+
05

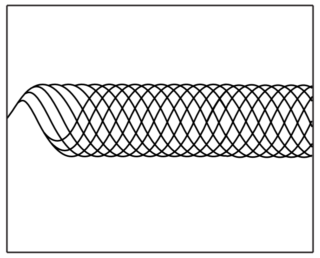
• Waveforms

❶ IC201 ② (DVD play)
200 mV/DIV 50 ns/DIV



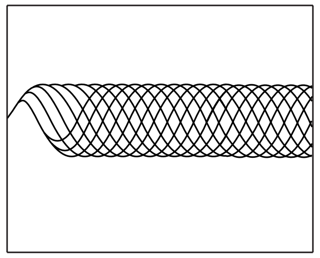
570 mVp-p

❶ IC201 ② (CD play)
200 mV/DIV 200 ns/DIV



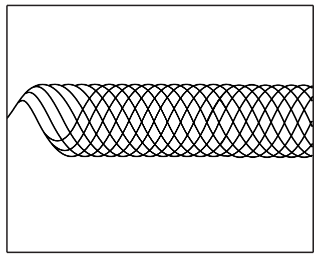
550 mVp-p

❷ IC201 ㊾ (DVD play)
500 mV/DIV 50 ns/DIV



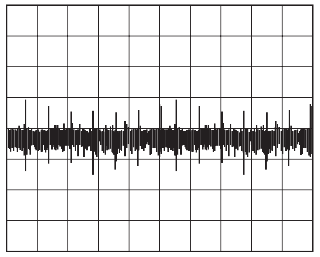
1.4 Vp-p

❷ IC201 ㊾ (CD play)
500 mV/DIV 200 ns/DIV



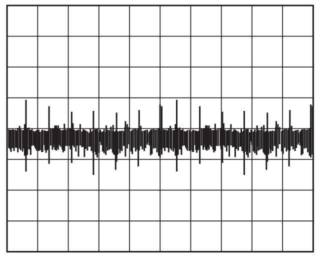
1.4 Vp-p

❸ IC201 ㊷ (DVD play)
100 mV/DIV 50 ms/DIV



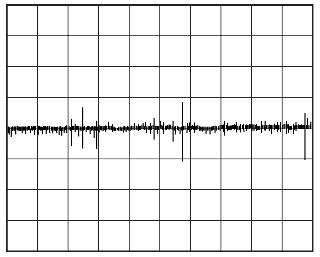
180 mVp-p

❸ IC201 ㊷ (CD play)
500 mV/DIV 50 ms/DIV



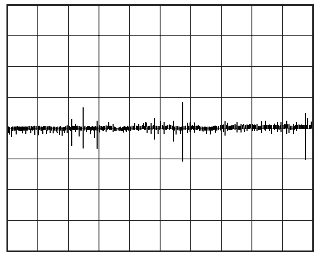
860 mVp-p

❹ IC201 ㊶ (DVD play)
500 mV/DIV 50 ms/DIV



1.5 Vp-p

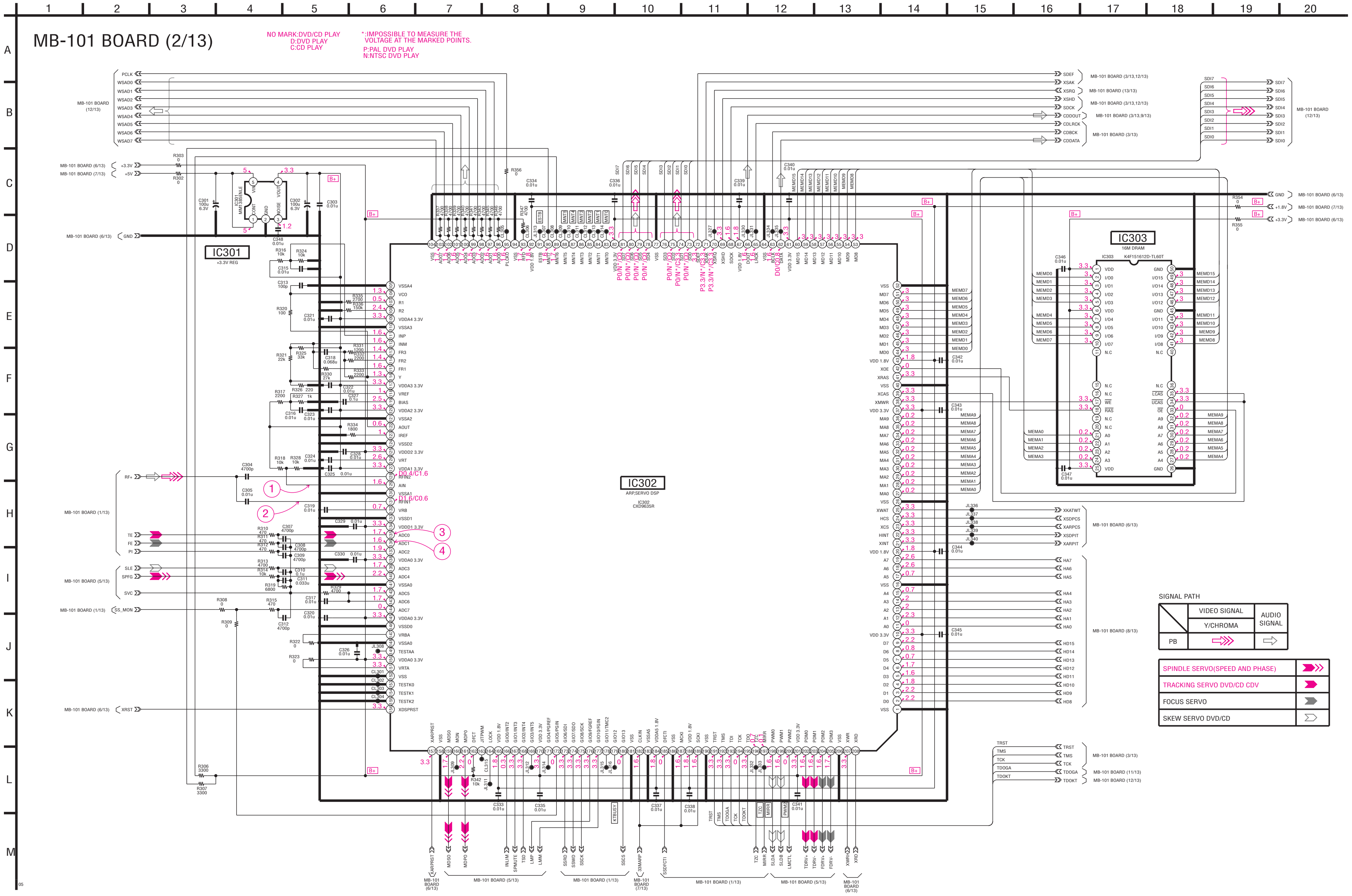
❹ IC201 ㊶ (CD play)
500 mV/DIV 200 ns/DIV



1.7 Vp-p

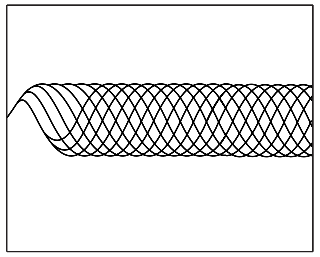
MB-101 (ARP, SERVO DSP) SCHEMATIC DIAGRAM • See page 4-7 for printed wiring board.

– Ref. No.: MB-101 board; 2,000 series –


MB-101 BOARD (2/13)
NO MARK:DVD/CD PLAY
D:DVD PLAY
C:CD PLAY
*:IMPOSSIBLE TO MEASURE THE VOLTAGE AT THE MARKED POINTS.
P:PAL DVD PLAY
N:NTSC DVD PLAY
IC301
+3.3V REG
IC302
ARP,SERVO DSP
CXD9635R
IC303
16M DRAM
K4F151612D-TL60T
SIGNAL PATH
VIDEO SIGNAL
Y/CHROMA
AUDIO SIGNAL
PB
SPINDLE SERVO(SPEED AND PHASE)
TRACKING SERVO DVD/CD CDV
FOCUS SERVO
SKEW SERVO DVD/CD

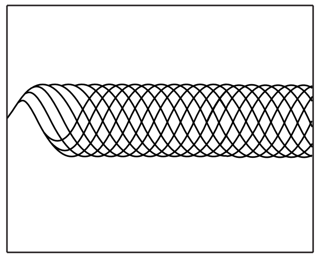
• Waveforms

❶ IC302 ⑫⑧ (CD play)
500 mV/DIV 200 ns/DIV



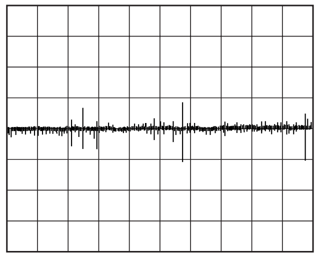
1.4 Vp-p

❷ IC302 ⑬① (DVD play)
500 mV/DIV 100 ns/DIV



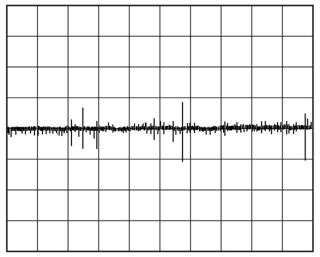
1.4 Vp-p

❸ IC302 ⑬⑤ (DVD play)
500 mV/DIV 50 ms/DIV



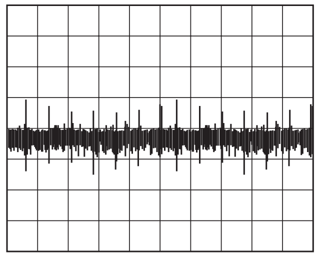
1.4 Vp-p

❸ IC302 ⑬⑤ (CD play)
500 mV/DIV 200 ms/DIV



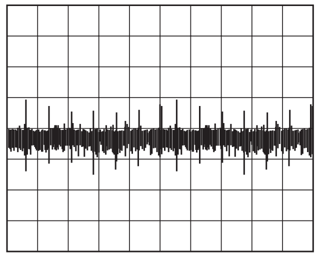
1.7 Vp-p

❹ IC302 ⑬⑥ (DVD play)
100 mV/DIV 50 ms/DIV



160 mVp-p

❹ IC302 ⑬⑥ (CD play)
500 mV/DIV 50 ms/DIV

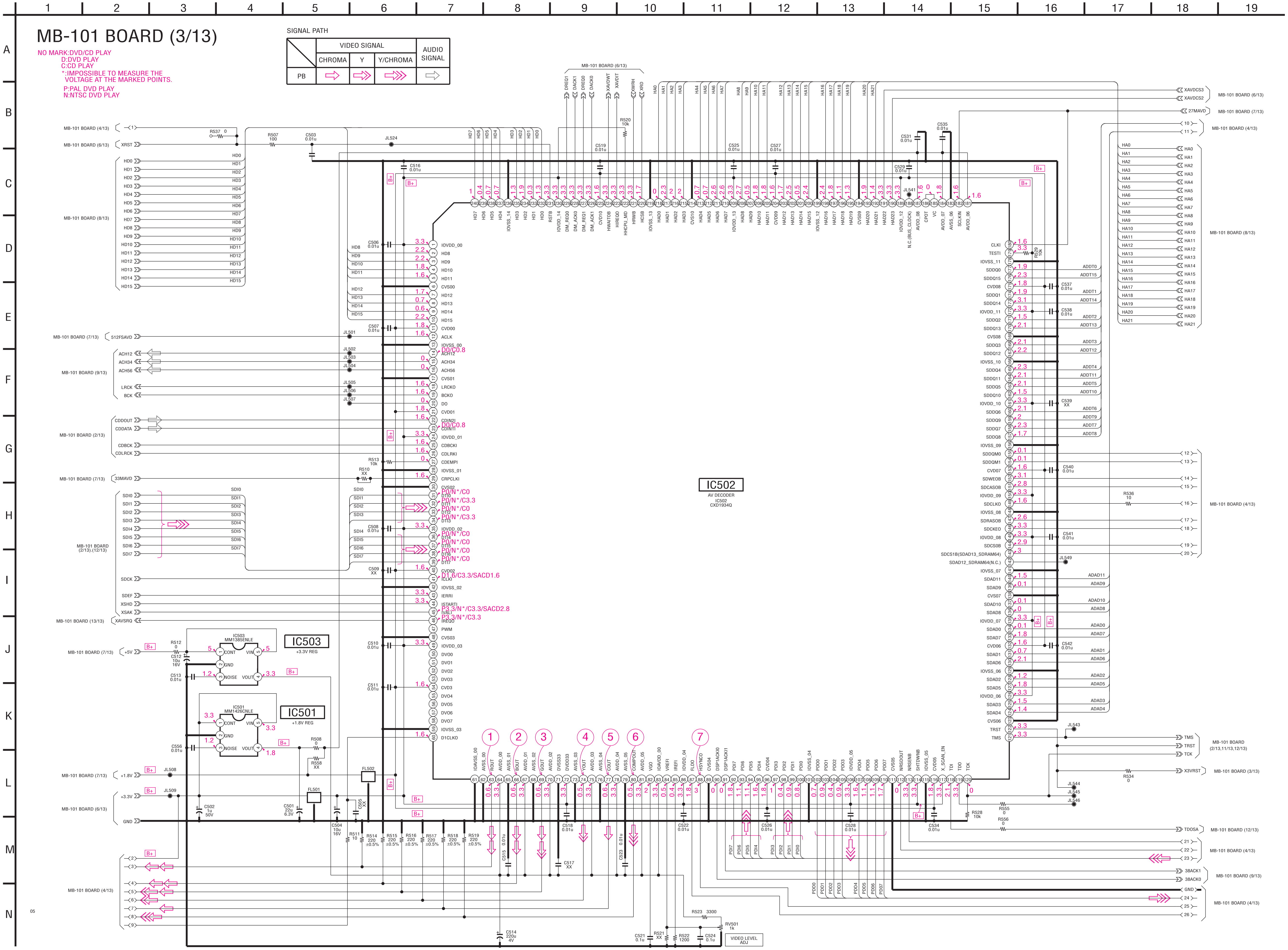


860 mVp-p

ARP, SERVO DSP
MB-101 (2/13)

MB-101 (AV DECODER) SCHEMATIC DIAGRAM • See page 4-7 for printed wiring board.

– Ref. No.: MB-101 board; 2,000 series –


MB-101 BOARD (3/13)
NO MARK:DVD/CD PLAY
D:DVD PLAY
C:CD PLAY
*:IMPOSSIBLE TO MEASURE THE VOLTAGE AT THE MARKED POINTS.
P:PAL DVD PLAY
N:NTSC DVD PLAY
SIGNAL PATH
VIDEO SIGNAL
CHROMA
Y
Y/CHROMA
AUDIO SIGNAL
PB
IC502
AV DECODER
IC502
CXD1934Q
IC503
MM1385ENLE
+3.3V REG
IC501
MM1426CNLE
+1.8V REG
VIDEO LEVEL ADJ
RV501 1k
MB-101 BOARD (4/13)
MB-101 BOARD (6/13)
MB-101 BOARD (7/13)
MB-101 BOARD (8/13)
MB-101 BOARD (9/13)
MB-101 BOARD (2/13)
MB-101 BOARD (13/13)
MB-101 BOARD (12/13)
MB-101 BOARD (3/13)
MB-101 BOARD (2/13),(12/13)
MB-101 BOARD (2/13,11/13,12/13)
05

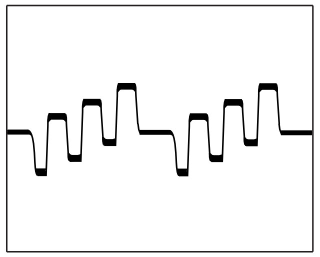
AV DECODER
MB-101 (3/13)

MB-101 (BNR) SCHEMATIC DIAGRAM • See page 4-7 for printed wiring board.

– Ref. No.: MB-101 board; 2,000 series –

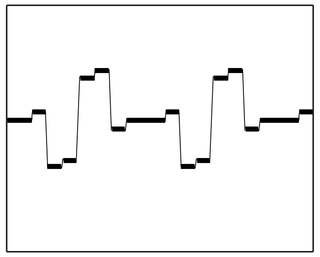
• Waveforms

① IC502 (63)



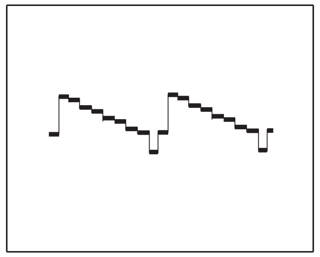
620 mVp-p (H)

② IC502 (66)



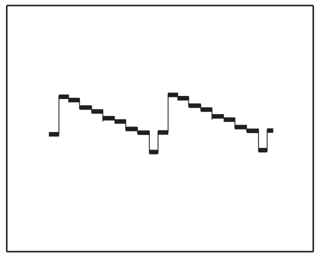
620 mVp-p (H)

③ IC502 (69)



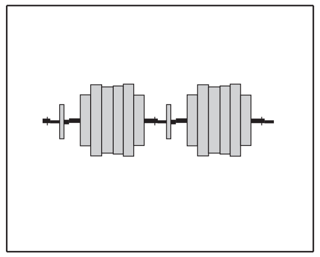
940 mVp-p (H)

④ IC502 (74)



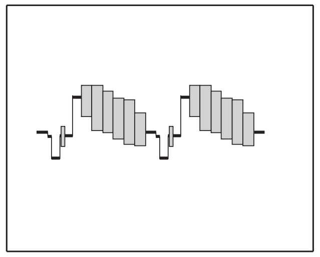
940 mVp-p (H)

⑤ IC502 (77)



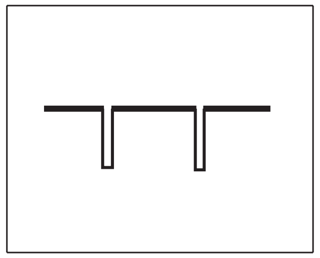
810 mVp-p (H)

⑥ IC502 (80)

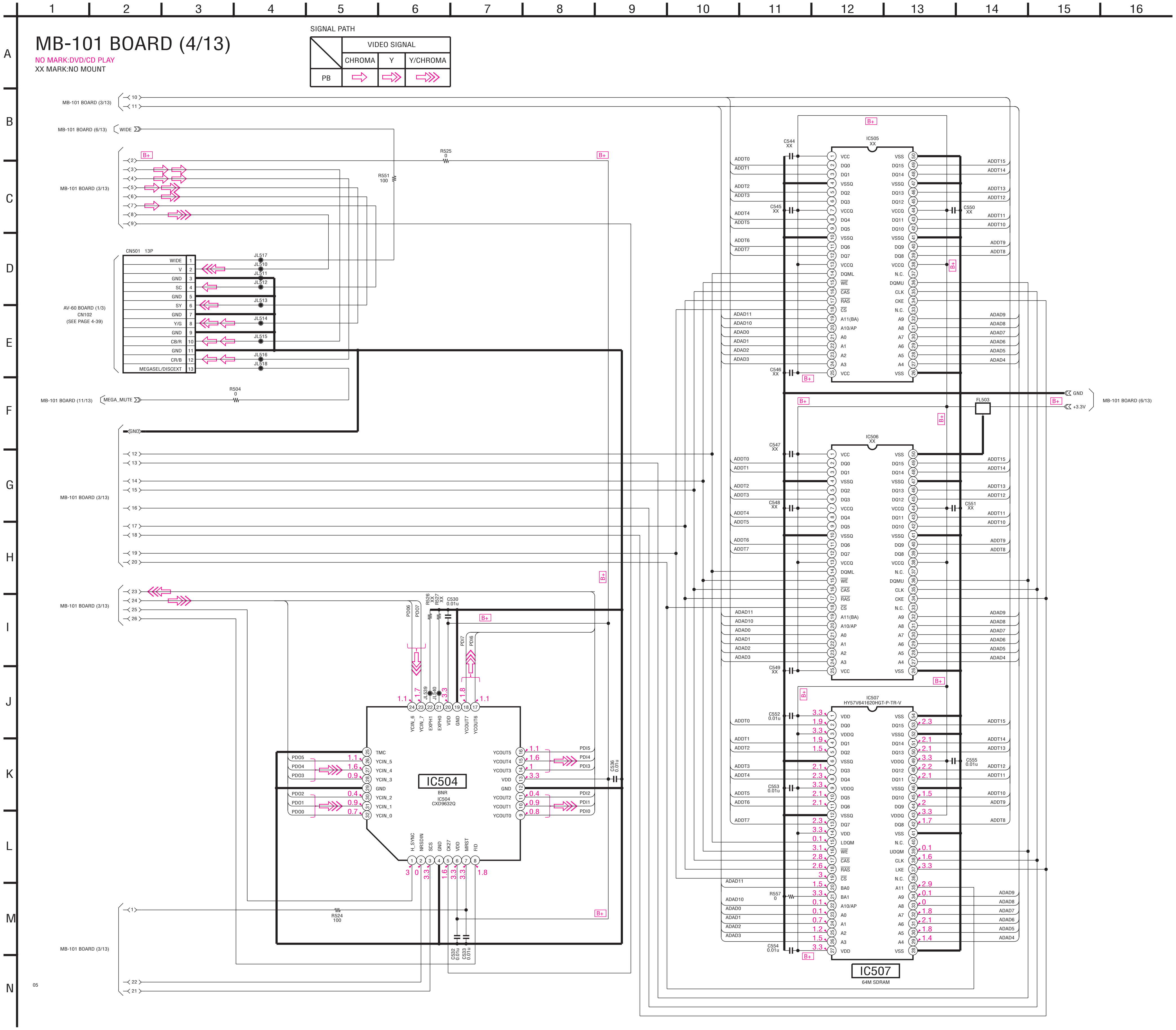


1.1 Vp-p (H)

⑦ IC502 (88)

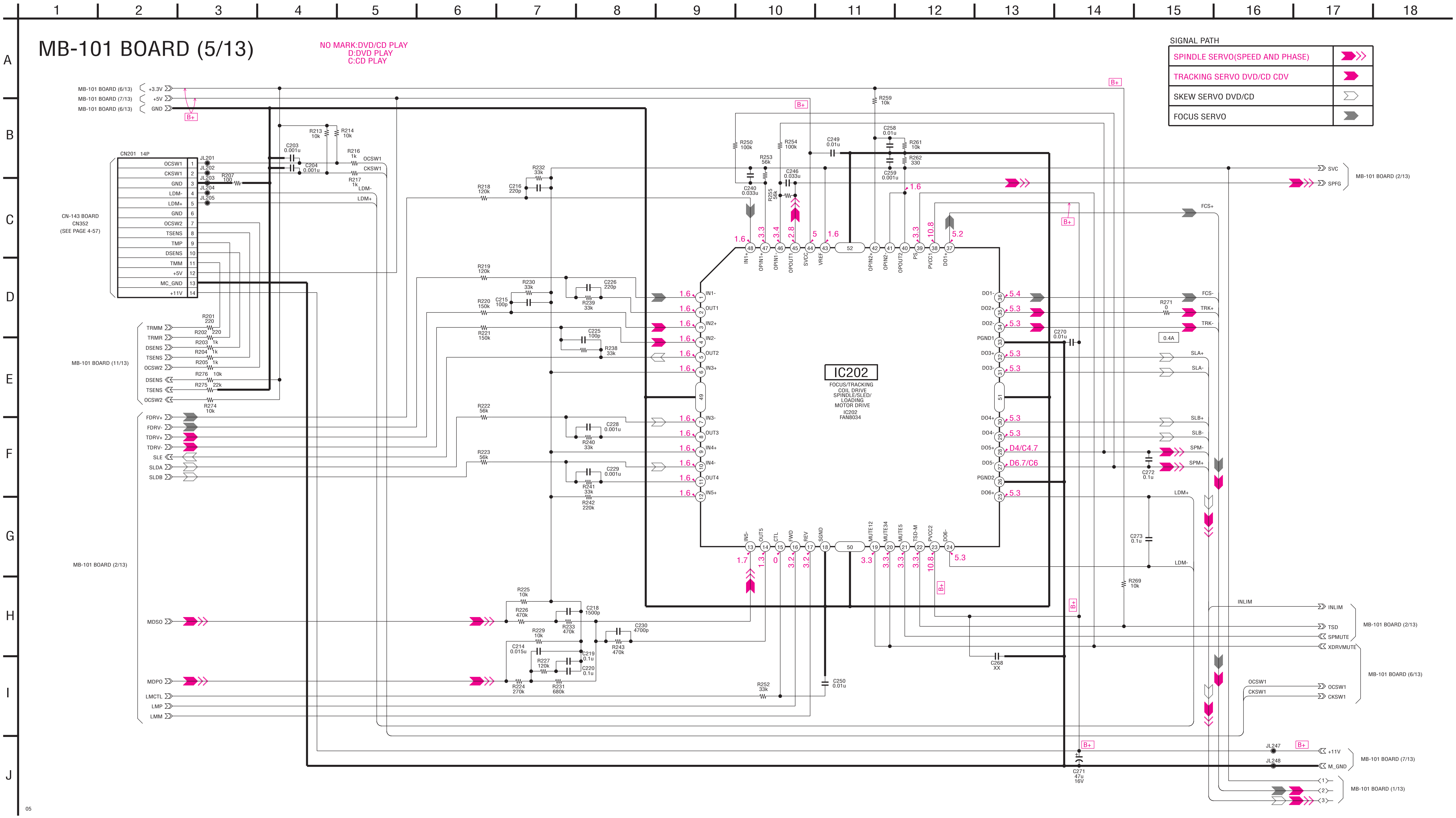


3.2 Vp-p (H)


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
K
L
M
N
MB-101 BOARD (4/13)
NO MARK:DVD/CD PLAY
XX MARK:NO MOUNT
SIGNAL PATH
VIDEO SIGNAL
CHROMA
Y
Y/CHROMA
PB
MB-101 BOARD (3/13)
MB-101 BOARD (6/13)
WIDE
MB-101 BOARD (11/13)
MEGA_MUTE
GND
CN501 13P
WIDE
V
GND
SC
GND
SY
GND
Y/G
GND
CB/R
GND
CR/B
MEGASEL/DISCEXT
AV-60 BOARD (1/3)
CN102
(SEE PAGE 4-39)
R525
R551
100
R504
0
R524
100
C530
0.01u
C536
0.01u
IC504
BNR
IC504
CXD9632Q
TMC
YCIN_5
YCIN_4
YCIN_3
GND
YCIN_2
YCIN_1
YCIN_0
YCOUT5
YCOUT4
YCOUT3
VDD
GND
YCOUT2
YCOUT1
YCOUT0
H_SYNC
NRSSEN
SCS
GND
CK27
VDD
NRST
FID
PDO5
PDO4
PDO3
PDO2
PDO1
PDO0
PDI5
PDI4
PDI3
PDI2
PDI1
PDI0
IC505
XX
IC506
XX
IC507
HYS57V641620HGT-P-TR-V
64M SDRAM
FL503
+3.3V
B+

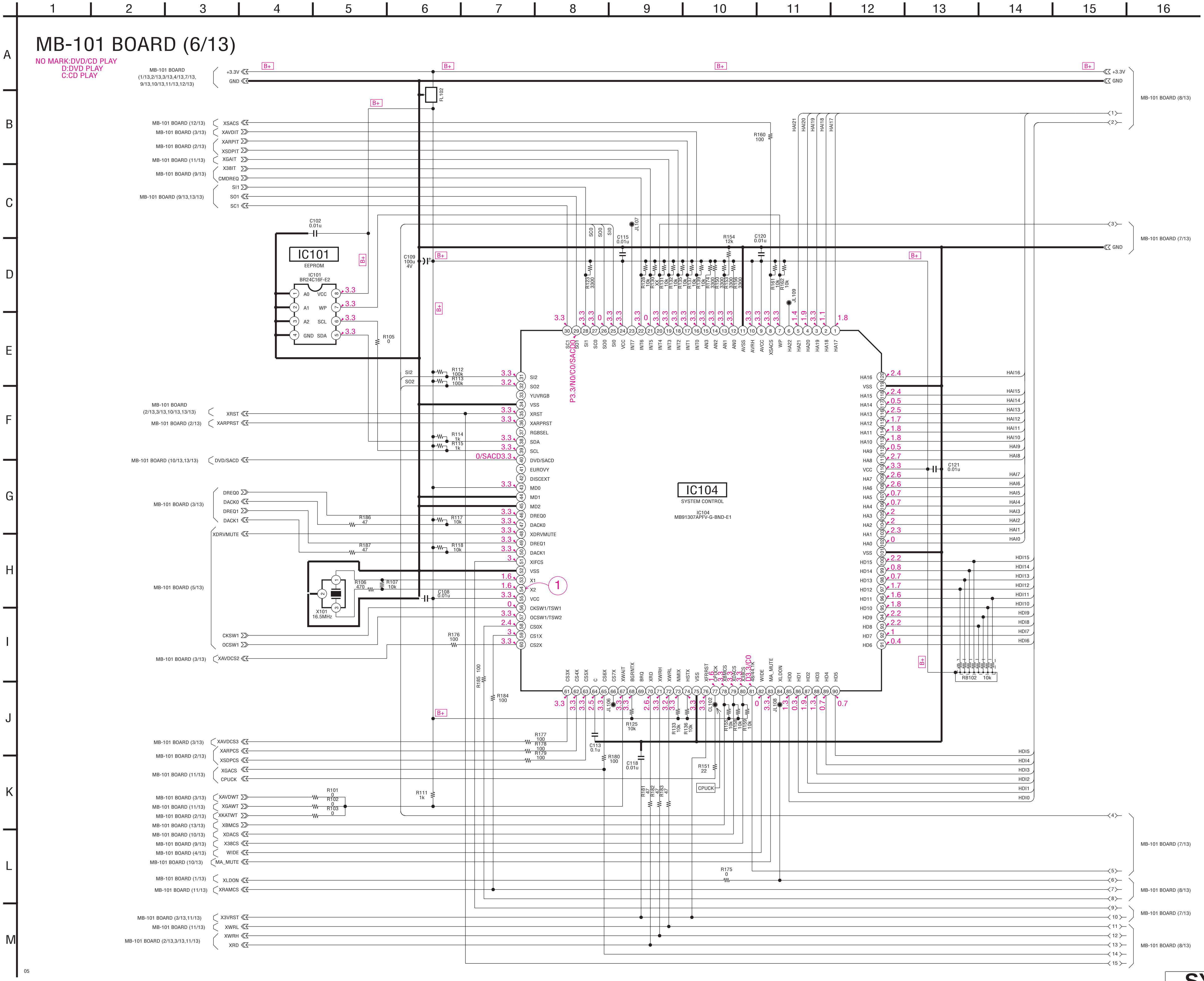
MB-101 (DRIVE) SCHEMATIC DIAGRAM • See page 4-7 for printed wiring board.

– Ref. No.: MB-101 board; 2,000 series –


MB-101 BOARD (5/13)
NO MARK:DVD/CD PLAY
D:DVD PLAY
C:CD PLAY
SIGNAL PATH
SPINDLE SERVO(SPEED AND PHASE)
TRACKING SERVO DVD/CD CDV
SKEW SERVO DVD/CD
FOCUS SERVO
IC202
FOCUS/TRACKING
COIL DRIVE
SPINDLE/SLED/
LOADING
MOTOR DRIVE
IC202
FAN8034
CN201 14P
CN-143 BOARD
CN352
(SEE PAGE 4-57)
MB-101 BOARD (6/13)
MB-101 BOARD (7/13)
MB-101 BOARD (11/13)
MB-101 BOARD (2/13)
MB-101 BOARD (1/13)
+3.3V
+5V
GND
+11V
M_GND
SVC
SPFG
INLIM
TSD
SPMUTE
XDRVMUTE
OCSW1
CKSW1
MDSO
MDPO
LMCTL
LMP
LMM
FDRV+
FDRV-
TDRV+
TDRV-
SLE
SLDA
SLDB
TRMM
TRMR
DSENS
TSENS
OCSW2
C271
47u
16V
05

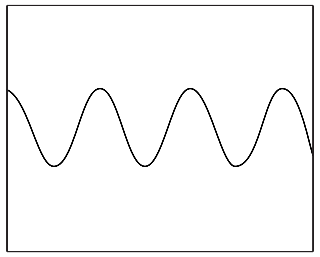
MB-101 (SYSTEM CONTROL) SCHEMATIC DIAGRAM • See page 4-7 for printed wiring board.

– Ref. No.: MB-101 board; 2,000 series –


MB-101 BOARD (6/13)
NO MARK:DVD/CD PLAY
D:DVD PLAY
C:CD PLAY
IC101
EEPROM
IC101 BR24C16F-E2
A0 VCC A1 WP A2 SCL GND SDA
IC104
SYSTEM CONTROL
IC104 MB91307APFV-G-BND-E1
X101 16.5MHz
FL102
C102 0.01u
C109 100u 4V
C108 0.01u
C115 0.01u
C120 0.01u
C121 0.01u
C113 0.1u
C118 0.01u
RB102 10k
P3.3/N0/C0/SACD0
0/SACD3.3
B+
+3.3V
GND
MB-101 BOARD (8/13)
MB-101 BOARD (7/13)
XSACS XAVDIT XARPIT XSDPIT XGAIT X38IT CMDREQ SI1 SO1 SC1
XRST XARPRST DVD/SACD DREQ0 DACK0 DREQ1 DACK1 XDRVMUTE CKSW1 OCSW1 XAVDCS2
XAVDCS3 XARPCS XSDPCS XGACS CPUCK XAVDWT XGAWT XKATWT XBMCS XDACS X38CS WIDE MA_MUTE XLDON XRAMCS X3VRST XWRL XWRH XRD
SI2 SO2 YUVRGB VSS XRST XARPRST RGBSEL SDA SCL DVD/SACD EUROVY DISCEXT MD0 MD1 MD2 DREQ0 DACK0 XDRVMUTE DREQ1 DACK1 XIFCS VSS X1 X2 VCC CKSW1/TSW1 OCSW1/TSW2 CS0X CS1X CS2X
HA16 VSS HA15 HA14 HA13 HA12 HA11 HA10 HA9 HA8 VCC HA7 HA6 HA5 HA4 HA3 HA2 HA1 HA0 VSS HD15 HD14 HD13 HD12 HD11 HD10 HD9 HD8 HD7 HD6
SC1 SO1 SI1 SC0 SO0 SI0 VCC INT7 INT6 INT5 INT4 INT3 INT2 INT1 INT0 AN3 AN2 AN1 AN0 AVSS AVRH AVCC XSACS WP HA22 HA21 HA20 HA19 HA18 HA17
CS3X CS4X CS5X C CS6X CS7X XWAIT BGRNTX BRQ XRD XWRH XWRL NMIX HSTX VSS XFRRST CPUCK HD0 HD1 HD2 HD3 HD4 HD5 WIDE MA_MUTE XLDON
1

• Waveform

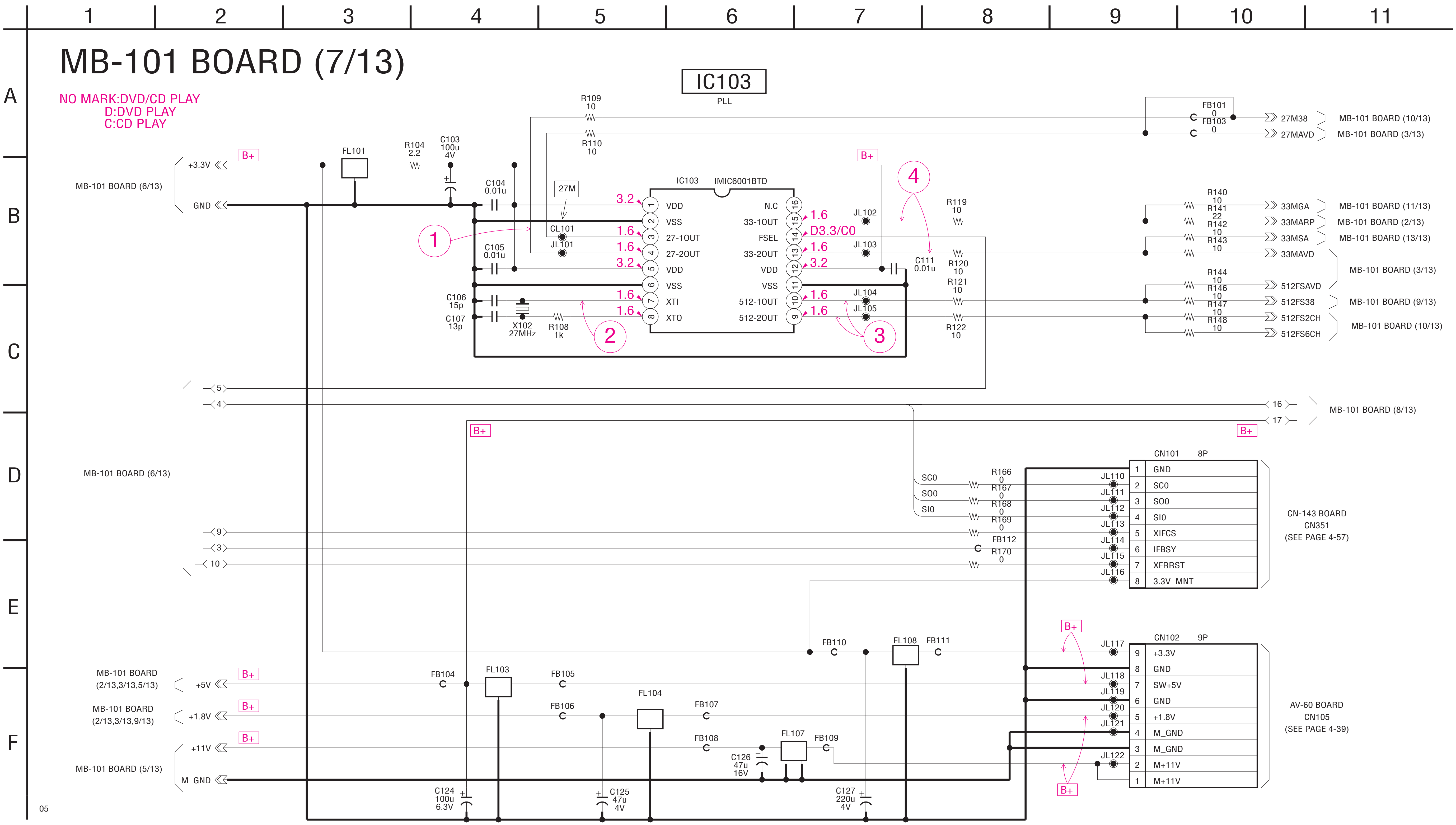
❶ IC104 (54)



1.7 Vp-p (16.5 MHz)

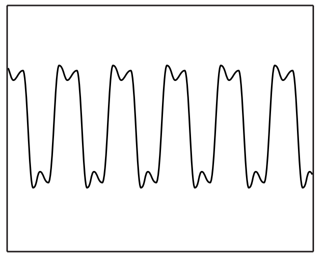
MB-101 (CLOCK GENERATOR) SCHEMATIC DIAGRAM • See page 4-7 for printed wiring board.

– Ref. No.: MB-101 board; 2,000 series –


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
MB-101 BOARD (7/13)
NO MARK:DVD/CD PLAY
D:DVD PLAY
C:CD PLAY
IC103
PLL
IC103 IMIC6001BTD
B+
+3.3V
GND
MB-101 BOARD (6/13)
FL101
R104 2.2
C103 100u 4V
C104 0.01u
27M
CL101
JL101
C105 0.01u
C106 15p
C107 13p
X102 27MHz
R108 1k
R109 10
R110 10
VDD
VSS
27-1OUT
27-2OUT
VDD
VSS
XTI
XTO
N.C
33-1OUT
FSEL
33-2OUT
VDD
VSS
512-1OUT
512-2OUT
3.2
1.6
1.6
3.2
1.6
1.6
1.6
D3.3/C0
1.6
3.2
1.6
1.6
JL102
JL103
JL104
JL105
C111 0.01u
R119 10
R120 10
R121 10
R122 10
FB101 0
FB103 0
27M38
27MAVD
MB-101 BOARD (10/13)
MB-101 BOARD (3/13)
R140 10
R141 22
R142 10
R143 10
33MGA
33MARP
33MSA
33MAVD
MB-101 BOARD (11/13)
MB-101 BOARD (2/13)
MB-101 BOARD (13/13)
MB-101 BOARD (3/13)
R144 10
R146 10
R147 10
R148 10
512FSAVD
512FS38
512FS2CH
512FS6CH
MB-101 BOARD (9/13)
MB-101 BOARD (10/13)
5
4
16
17
MB-101 BOARD (8/13)
MB-101 BOARD (6/13)
9
3
10
SC0
S00
SI0
R166 0
R167 0
R168 0
R169 0
FB112
R170 0
JL110
JL111
JL112
JL113
JL114
JL115
JL116
CN101 8P
1 GND
2 SC0
3 S00
4 SI0
5 XIFCS
6 IFBSY
7 XFRRST
8 3.3V_MNT
CN-143 BOARD
CN351
(SEE PAGE 4-57)
MB-101 BOARD (2/13,3/13,5/13)
+5V
MB-101 BOARD (2/13,3/13,9/13)
+1.8V
+11V
M_GND
MB-101 BOARD (5/13)
FB104
FL103
FB105
FB106
FL104
FB107
FB108
FL107
FB109
FB110
FL108
FB111
C124 100u 6.3V
C125 47u 4V
C126 47u 16V
C127 220u 4V
JL117
JL118
JL119
JL120
JL121
JL122
CN102 9P
9 +3.3V
8 GND
7 SW+5V
6 GND
5 +1.8V
4 M_GND
3 M_GND
2 M+11V
1 M+11V
AV-60 BOARD
CN105
(SEE PAGE 4-39)
05

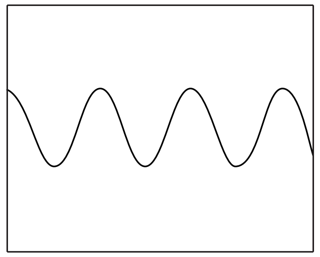
• Waveforms

❶ IC103 ③



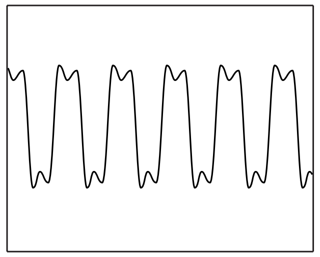
3.5 Vp-p (27 MHz)

❷ IC103 ⑦



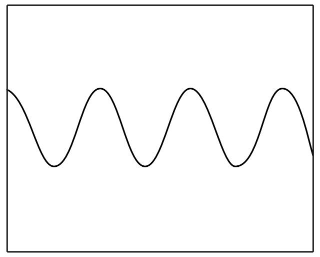
1.5 Vp-p (27 MHz)

❸ IC103 ⑨, ⑩



DVD : 3.3 Vp-p (24.57 MHz)
CD : 3.3 Vp-p (22.58 MHz)

❹ IC103 ⑬, ⑮

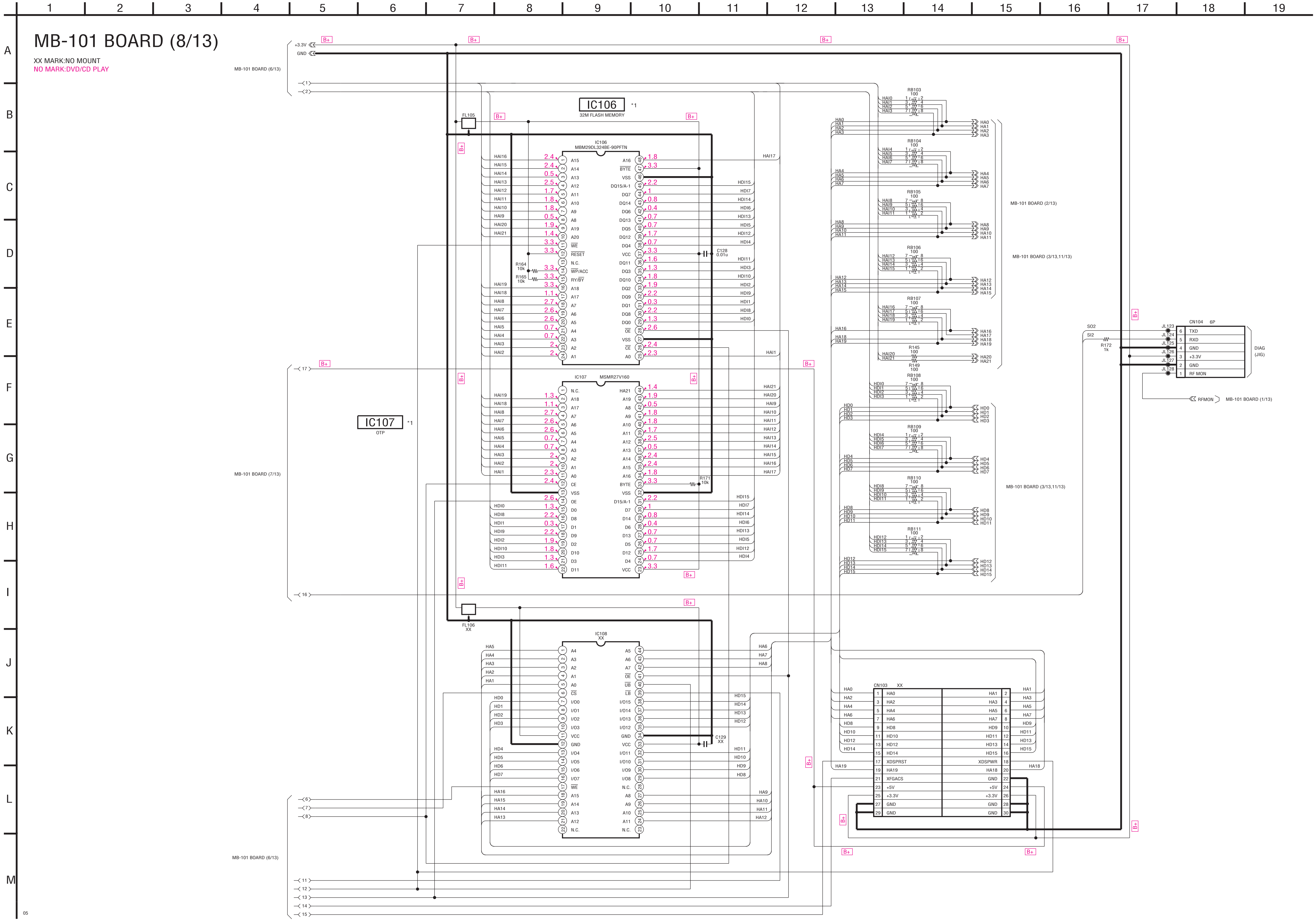


3.2 Vp-p (33.87 MHz)

MB-101 (FLASH MEMORY, OTP) SCHEMATIC DIAGRAM • See page 4-7 for printed wiring board.

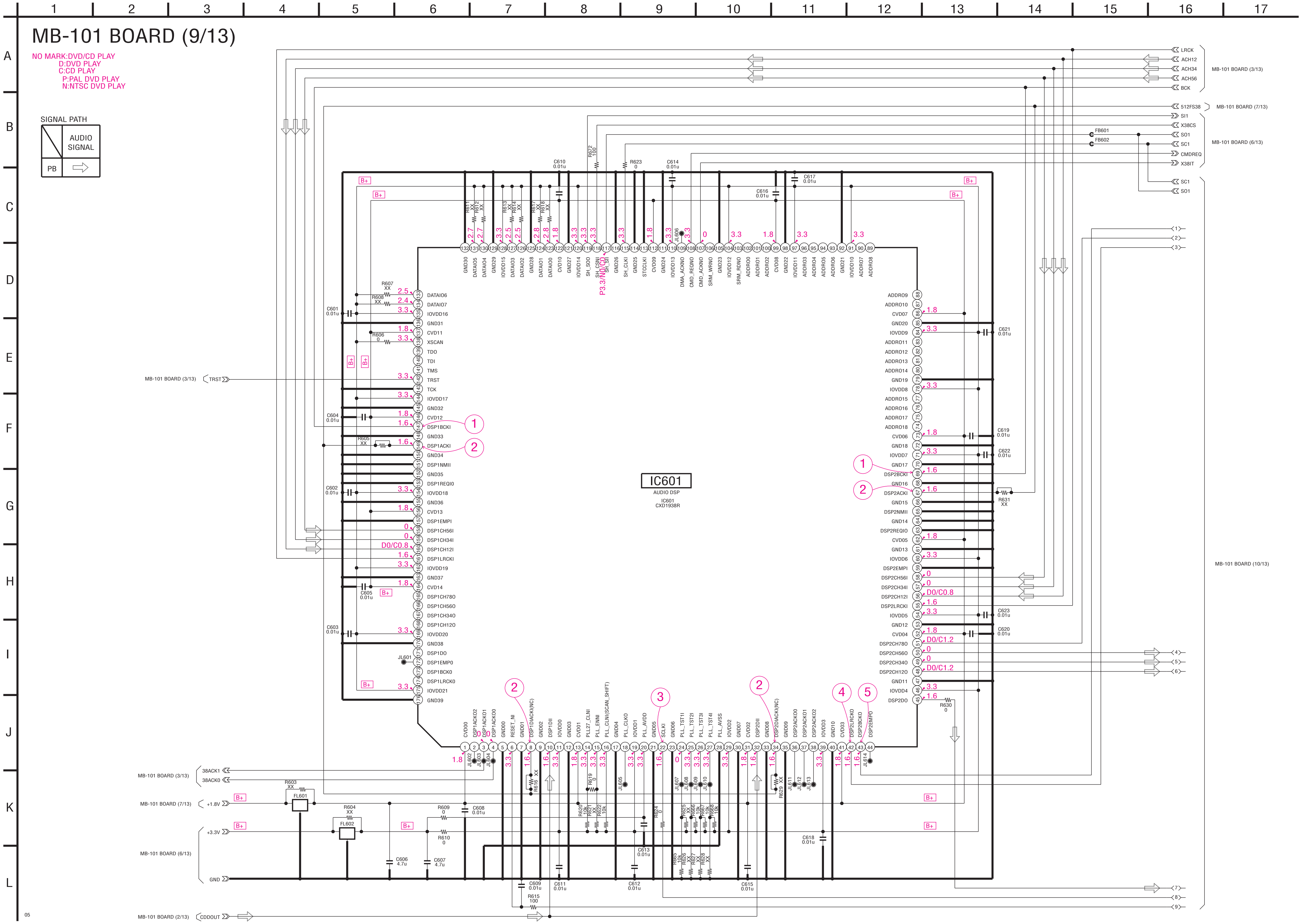
– Ref. No.: MB-101 board; 2,000 series –

*1: Either IC106 or IC107 is used.


MB-101 BOARD (8/13)
XX MARK:NO MOUNT
NO MARK:DVD/CD PLAY
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
A B C D E F G H I J K L M
+3.3V
GND
MB-101 BOARD (6/13)
MB-101 BOARD (7/13)
MB-101 BOARD (2/13)
MB-101 BOARD (3/13,11/13)
MB-101 BOARD (1/13)
IC106 *1
32M FLASH MEMORY
IC106
MBM29DL324BE-90PFTN
IC107 *1
OTP
IC107 MSMR27V160
IC108
XX
FL105
FL106
XX
R164 10k
R165 10k
R171 10k
C128 0.01u
C129 XX
RB103 100
RB104 100
RB105 100
RB106 100
RB107 100
RB108 100
RB109 100
RB110 100
RB111 100
R145 100
R149 100
R172 1k
CN103 XX
CN104 6P
TXD
RXD
GND
+3.3V
GND
RF MON
DIAG (JIG)
RFMON
SO2
SI2
JL123
JL124
JL125
JL126
JL127
JL128
XDSPRST
XDSPWR
XFGACS
+5V
B+
05

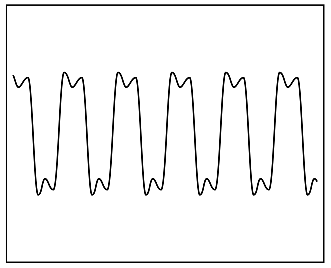
MB-101 (AUDIO DSP) SCHEMATIC DIAGRAM • See page 4-7 for printed wiring board.

– Ref. No.: MB-101 board; 2,000 series –


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
J
K
L
MB-101 BOARD (9/13)
NO MARK:DVD/CD PLAY
D:DVD PLAY
C:CD PLAY
P:PAL DVD PLAY
N:NTSC DVD PLAY
SIGNAL PATH
AUDIO SIGNAL
PB
IC601
AUDIO DSP
IC601
CXD1938R
LRCK
ACH12
ACH34
ACH56
BCK
MB-101 BOARD (3/13)
512FS38
SI1
X38CS
SO1
SC1
CMDREQ
X38IT
MB-101 BOARD (7/13)
MB-101 BOARD (6/13)
FB601
FB602
MB-101 BOARD (10/13)
MB-101 BOARD (3/13)
TRST
38ACK1
38ACK0
MB-101 BOARD (7/13)
+1.8V
MB-101 BOARD (6/13)
+3.3V
GND
MB-101 BOARD (2/13)
CDDOUT
FL601
FL602
B+
05

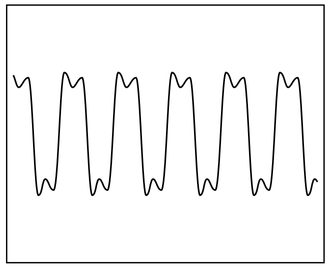
• Waveforms

❶ IC601 (69), (141)



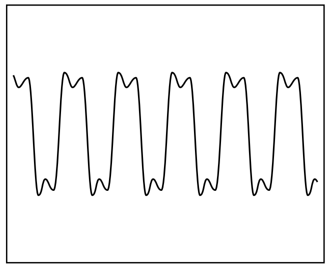
4.1 Vp-p (3.1 MHz)

❷ IC601 ⑧, ㉞, (67), (149)



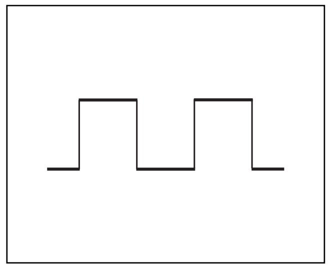
DVD: 3.3 Vp-p (24.57 MHz)
CD: 3.3 Vp-p (22.58 MHz)

❸ IC601 ㉒



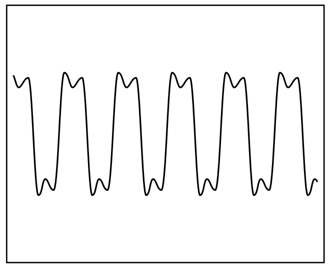
3.5 Vp-p (27 MHz)

❹ IC601 ㊷



4.3 Vp-p (48.1 kHz)

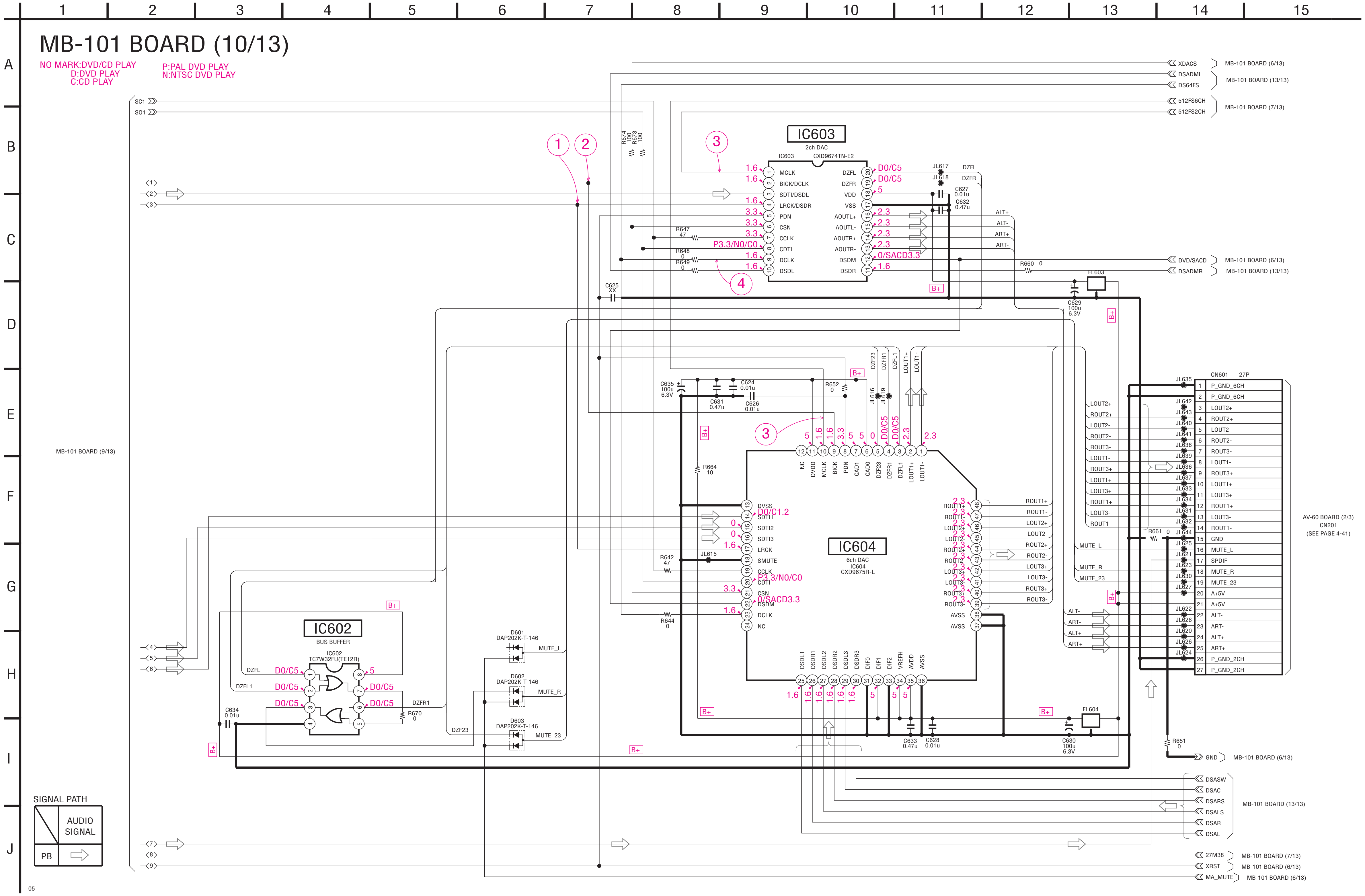
❺ IC601 ㊸



4.4 Vp-p (3.1 MHz)

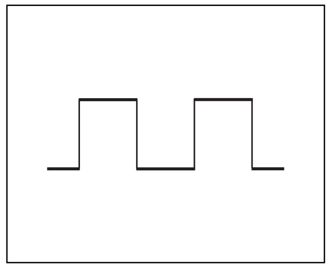
MB-101 (2ch/6ch DAC) SCHEMATIC DIAGRAM • See page 4-7 for printed wiring board.

– Ref. No.: MB-101 board; 2,000 series –


MB-101 BOARD (10/13)
NO MARK:DVD/CD PLAY
D:DVD PLAY
C:CD PLAY
P:PAL DVD PLAY
N:NTSC DVD PLAY
IC603
2ch DAC
IC603 CXD9674TN-E2
IC604
6ch DAC
IC604 CXD9675R-L
IC602
BUS BUFFER
IC602 TC7W32FU(TE12R)
D601 DAP202K-T-146
D602 DAP202K-T-146
D603 DAP202K-T-146
MUTE_L
MUTE_R
MUTE_23
CN601 27P
AV-60 BOARD (2/3) CN201 (SEE PAGE 4-41)
MB-101 BOARD (9/13)
MB-101 BOARD (6/13)
MB-101 BOARD (13/13)
MB-101 BOARD (7/13)
XDACS
DSADML
DS64FS
512FS6CH
512FS2CH
DVD/SACD
DSADMR
GND
DSASW
DSAC
DSARS
DSALS
DSAR
DSAL
27M38
XRST
MA_MUTE
SIGNAL PATH
AUDIO SIGNAL
PB
05

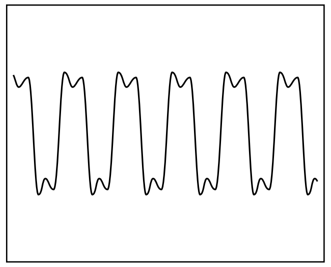
• **Waveforms**

❶ IC603 ④, IC604 ⑰



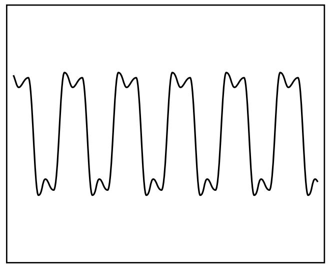
4.3 Vp-p (48.1 kHz)

❷ IC603 ②, IC604 ⑨



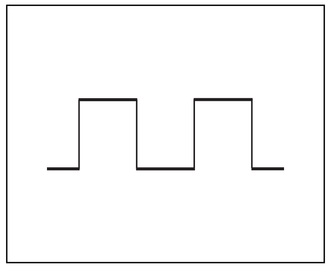
4.4 Vp-p (3.1 MHz)

❸ IC603 ①, IC604 ⑩



DVD: 3.3 Vp-p (24.57 MHz)
CD: 3.3 Vp-p (22.58 MHz)

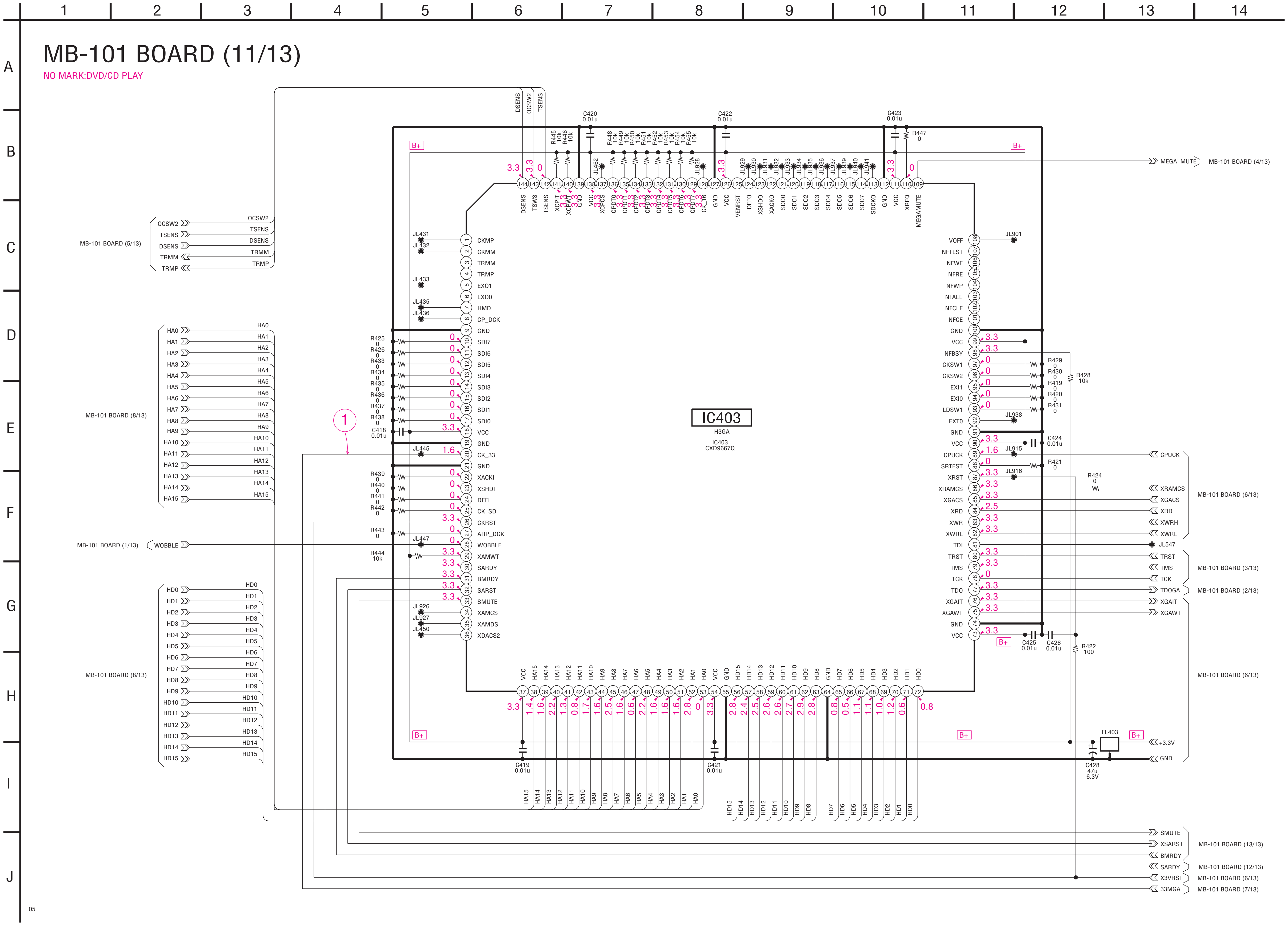
❹ IC603 ⑨



4 Vp-p (2.84 MHz)

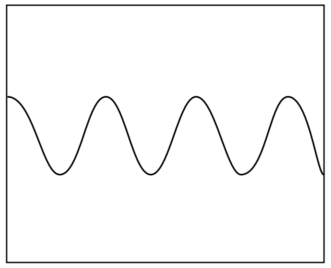
MB-101 (H3GA) SCHEMATIC DIAGRAM • See page 4-7 for printed wiring board.

– Ref. No.: MB-101 board; 2,000 series –


1 2 3 4 5 6 7 8 9 10 11 12 13 14
A B C D E F G H I J
MB-101 BOARD (11/13)
NO MARK:DVD/CD PLAY
IC403
H3GA
IC403
CXD9667Q
CKMP
CKMM
TRMM
TRMP
EXO1
EXO0
HMD
CP_DCK
GND
SDI7
SDI6
SDI5
SDI4
SDI3
SDI2
SDI1
SDI0
VCC
GND
CK_33
GND
XACKI
XSHDI
DEFI
CK_SD
CKRST
ARP_DCK
WOBBLE
XAMWT
SARDY
BMRDY
SARST
SMUTE
XAMCS
XAMDS
XDACS2
VOFF
NFTEST
NFWE
NFRE
NFWP
NFALE
NFCLE
NFCE
GND
VCC
NFBSY
CKSW1
CKSW2
EXI1
EXI0
LDSW1
EXT0
GND
VCC
CPUCK
SRTEST
XRST
XRAMCS
XGACS
XRD
XWR
XWRL
TDI
TRST
TMS
TCK
TDO
XGAIT
XGAWT
GND
VCC
DSENS
TSW3
TSENS
XCPIT
XCPWT
GND
VCC
XGCS
CPDT0
CPDT1
CPDT2
CPDT3
CPDT4
CPDT5
CPDT6
CPDT7
CK_16
GND
VCC
VENRST
DEFO
XSHDO
XACKO
SDO0
SDO1
SDO2
SDO3
SDO4
SDO5
SDO6
SDO7
SDCKO
GND
VCC
XREO
MEGAMUTE
MEGA_MUTE
MB-101 BOARD (4/13)
MB-101 BOARD (5/13)
OCSW2
TSENS
DSENS
TRMM
TRMP
MB-101 BOARD (8/13)
HA0 HA1 HA2 HA3 HA4 HA5 HA6 HA7 HA8 HA9 HA10 HA11 HA12 HA13 HA14 HA15
HD0 HD1 HD2 HD3 HD4 HD5 HD6 HD7 HD8 HD9 HD10 HD11 HD12 HD13 HD14 HD15
MB-101 BOARD (1/13)
WOBBLE
CPUCK
XRAMCS
XGACS
XRD
XWRH
XWRL
JL547
MB-101 BOARD (6/13)
TRST
TMS
TCK
TDOGA
XGAIT
XGAWT
MB-101 BOARD (3/13)
MB-101 BOARD (2/13)
+3.3V
GND
SMUTE
XSARST
BMRDY
SARDY
X3VRST
33MGA
MB-101 BOARD (13/13)
MB-101 BOARD (12/13)
MB-101 BOARD (7/13)
B+
C420 0.01u
C422 0.01u
C423 0.01u
R447 0
R445 10k
R446 10k
R448 10k
R449 10k
R450 10k
R451 10k
R452 10k
R453 10k
R454 10k
R455 10k
R425 0
R426 0
R433 0
R434 0
R435 0
R436 0
R437 0
R438 0
C418 0.01u
R439 0
R440 0
R441 0
R442 0
R443 0
R444 10k
R429 0
R430 0
R419 0
R420 0
R431 0
R428 10k
R421 0
R424 0
C424 0.01u
C425 0.01u
C426 0.01u
R422 100
C419 0.01u
C421 0.01u
C428 47u 6.3V
FL403
JL431
JL432
JL433
JL435
JL436
JL445
JL447
JL926
JL927
JL450
JL901
JL938
JL915
JL916
05

• Waveforms

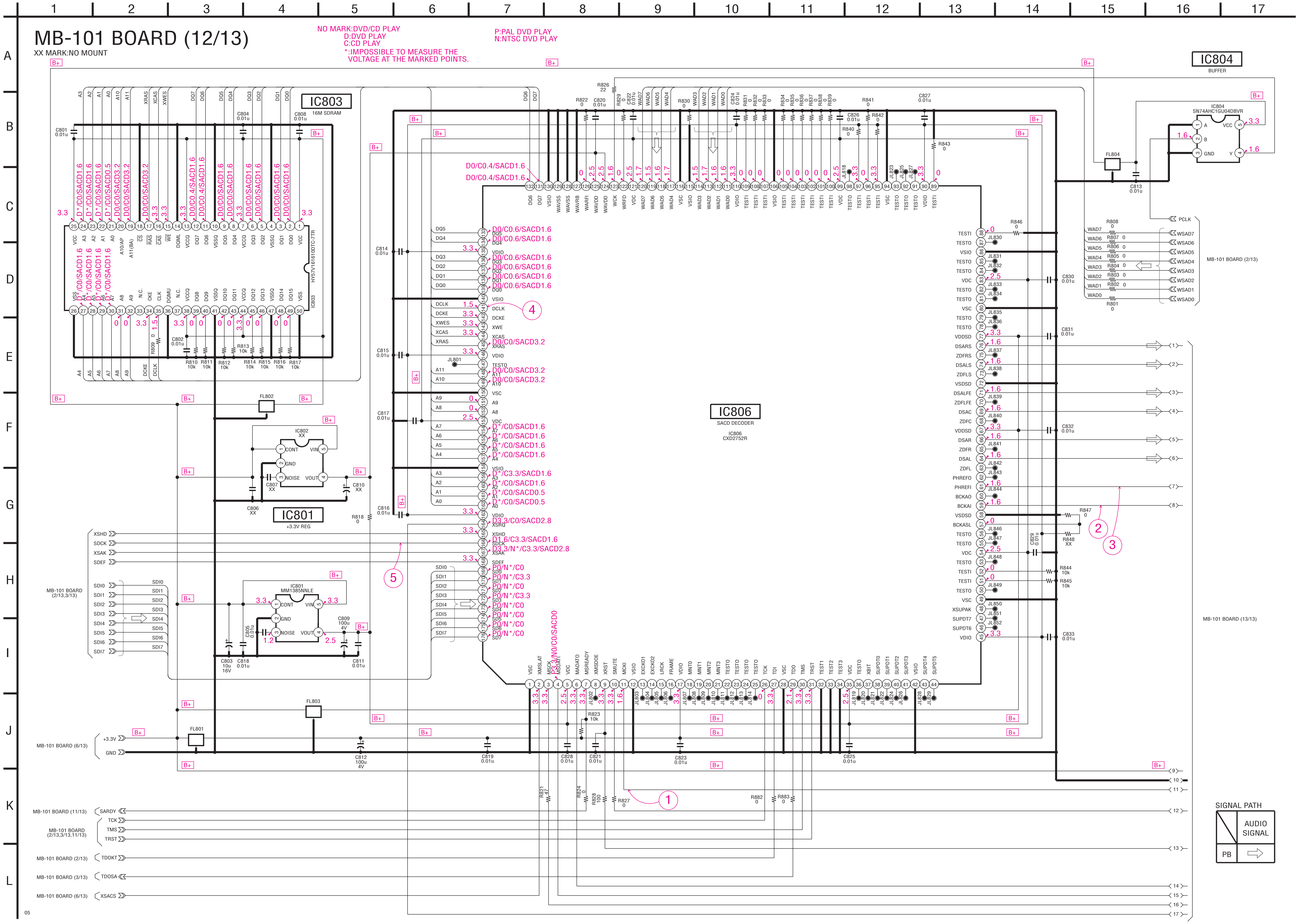
❶ IC403 ⑳



3.2 Vp-p (33.87 kHz)

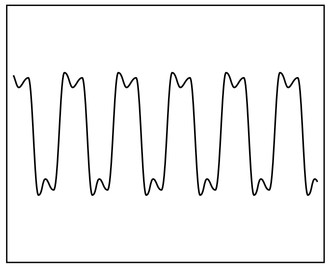
MB-101 (SACO DECODER) SCHEMATIC DIAGRAM • See page 4-7 for printed wiring board.

– Ref. No.: MB-101 board; 2,000 series –


MB-101 BOARD (12/13)
XX MARK:NO MOUNT
NO MARK:DVD/CD PLAY
D:DVD PLAY
C:CD PLAY
*:IMPOSSIBLE TO MEASURE THE VOLTAGE AT THE MARKED POINTS.
P:PAL DVD PLAY
N:NTSC DVD PLAY
IC803 16M SDRAM
IC806 SACD DECODER CXD2752R
IC801 +3.3V REG MM1385NNLE
IC802 XX
IC804 BUFFER SN74AHC1GU04DBVR
FL801
FL802
FL803
FL804
MB-101 BOARD (2/13)
MB-101 BOARD (13/13)
MB-101 BOARD (2/13,3/13)
MB-101 BOARD (6/13)
MB-101 BOARD (11/13)
MB-101 BOARD (2/13,3/13,11/13)
MB-101 BOARD (3/13)
SARDY
TCK
TMS
TRST
TDOKT
TDOSA
XSACS
+3.3V
GND
XSHD
SDCK
XSAK
SDEF
SDI0
SDI1
SDI2
SDI3
SDI4
SDI5
SDI6
SDI7
PCLK
WSAD7
WSAD6
WSAD5
WSAD4
WSAD3
WSAD2
WSAD1
WSAD0
SIGNAL PATH
AUDIO SIGNAL
PB
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
J
K
L
05

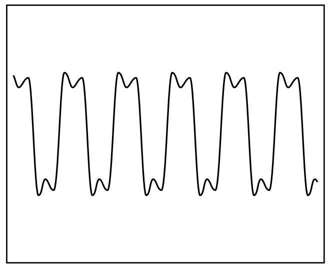
• Waveforms

① IC806 ⑪



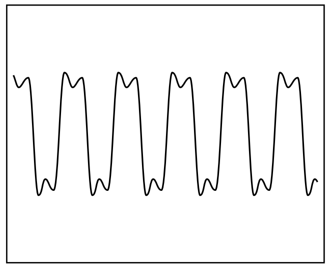
DVD: 3.3 Vp-p (24.57 MHz)
CD: 3.3 Vp-p (22.58 MHz)

② IC806 (59)



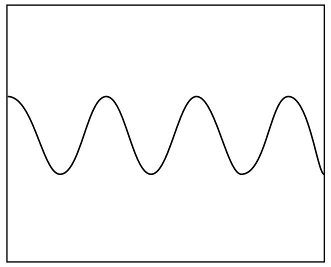
3.5 Vp-p (5.6 MHz)

③ IC806 (61)



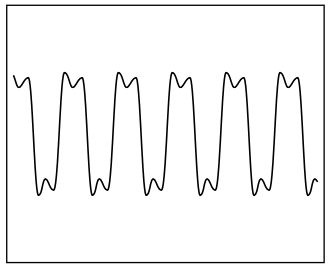
3.6 Vp-p (2.8 MHz)

④ IC806 (141)



4.9 Vp-p (33.78 MHz)

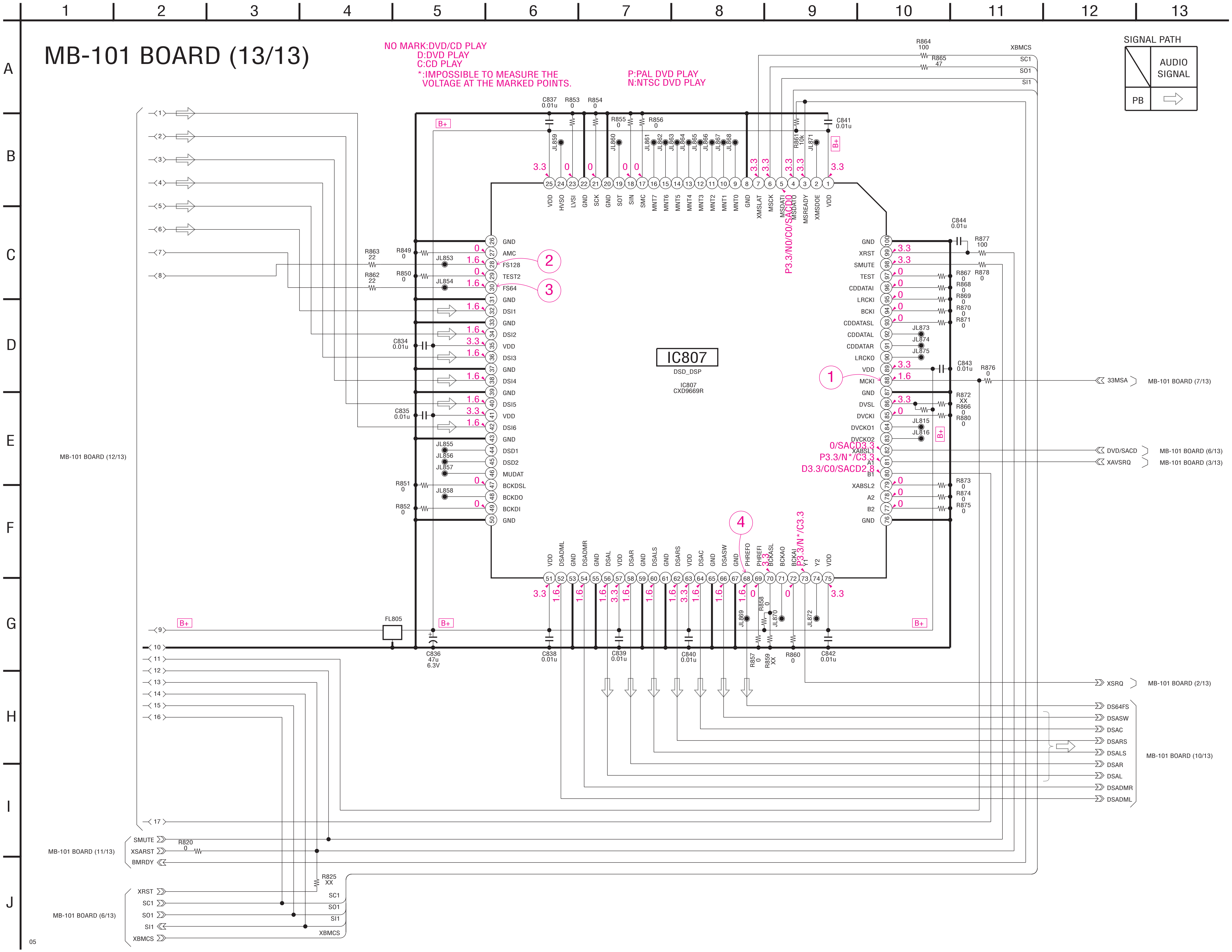
⑤ IC806 (166)



4.5 Vp-p (4.2 MHz)

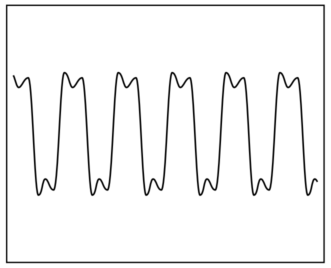
MB-101 (DSD DSP) SCHEMATIC DIAGRAM • See page 4-7 for printed wiring board.

– Ref. No.: MB-101 board; 2,000 series –


1 2 3 4 5 6 7 8 9 10 11 12 13
A B C D E F G H I J
MB-101 BOARD (13/13)
NO MARK:DVD/CD PLAY
D:DVD PLAY
C:CD PLAY
*:IMPOSSIBLE TO MEASURE THE VOLTAGE AT THE MARKED POINTS.
P:PAL DVD PLAY
N:NTSC DVD PLAY
SIGNAL PATH
AUDIO SIGNAL
PB
IC807
DSD_DSP
IC807
CXD9669R
VDD HVSO LVSI GND SCK GND SOT SIN SMC MNT7 MNT6 MNT5 MNT4 MNT3 MNT2 MNT1 MNT0 GND XMSLAT MSCK MSDATI MSDATO MSREADY XMSDOE VDD
GND AMC FS128 TEST2 FS64 GND DSI1 GND DSI2 VDD DSI3 GND DSI4 GND DSI5 VDD DSI6 GND DSD1 DSD2 MUDAT BCKDSL BCKDO BCKDI GND
GND XRST SMUTE TEST CDDATAI LRCKI BCKI CDDATASL CDDATAL CDDATAR LRCKO VDD MCKI GND DVSL DVCKI DVCKO1 DVCKO2 XABSL1 A1 B1 XABSL2 A2 B2 GND
VDD DSADMLL GND DSADMR GND DSAL VDD DSAR GND DSALS GND DSARS VDD DSAC GND DSASW GND PHREFO PHREFI BCKASL BCKAO BCKAI Y1 Y2 VDD
P3.3/N0/C0/SACD0
0/SACD3.3
P3.3/N*/C3.3
D3.3/C0/SACD2.8
P3.3/N*/C3.3
1 2 3 4
B+
C837 0.01u R853 0 R854 0 R855 0 R856 0 C841 0.01u R861 10k
C844 0.01u R877 100 R867 0 R878 0 R868 0 R869 0 R870 0 R871 0
C843 0.01u R876 0 R872 XX R866 0 R880 0 R873 0 R874 0 R875 0
R863 22 R849 0 R862 22 R850 0 R851 0 R852 0 C834 0.01u C835 0.01u
FL805 C836 47u 6.3V C838 0.01u C839 0.01u C840 0.01u C842 0.01u R857 0 R858 0 R859 XX R860 0
R864 100 R865 47 R820 0 R825 XX
JL853 JL854 JL855 JL856 JL857 JL858 JL859 JL860 JL861 JL862 JL863 JL864 JL865 JL866 JL867 JL868 JL869 JL870 JL871 JL872 JL873 JL874 JL875 JL815 JL816
XBMCS SC1 SO1 SI1
33MSA MB-101 BOARD (7/13)
DVD/SACD MB-101 BOARD (6/13)
XAVSRQ MB-101 BOARD (3/13)
XSRQ MB-101 BOARD (2/13)
DS64FS DSASW DSAC DSARS DSALS DSAR DSAL DSADMR DSADML MB-101 BOARD (10/13)
MB-101 BOARD (12/13)
SMUTE XSARST BMRDY MB-101 BOARD (11/13)
XRST SC1 SO1 SI1 XBMCS MB-101 BOARD (6/13)
05

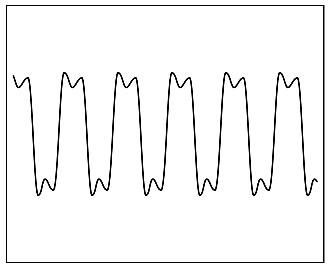
• **Waveforms**

❶ IC807 (88)



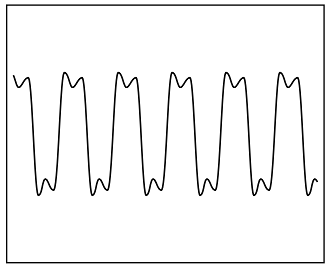
DVD: 3.3 Vp-p (24.57 MHz)
CD: 3.3 Vp-p (22.58 MHz)

❷ IC807 ㉘



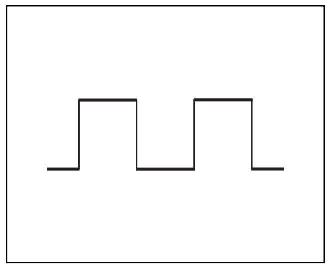
3.5 Vp-p (5.6 MHz)

❸ IC807 ㉚



3.6 Vp-p (2.8 MHz)

❹ IC807 (68)

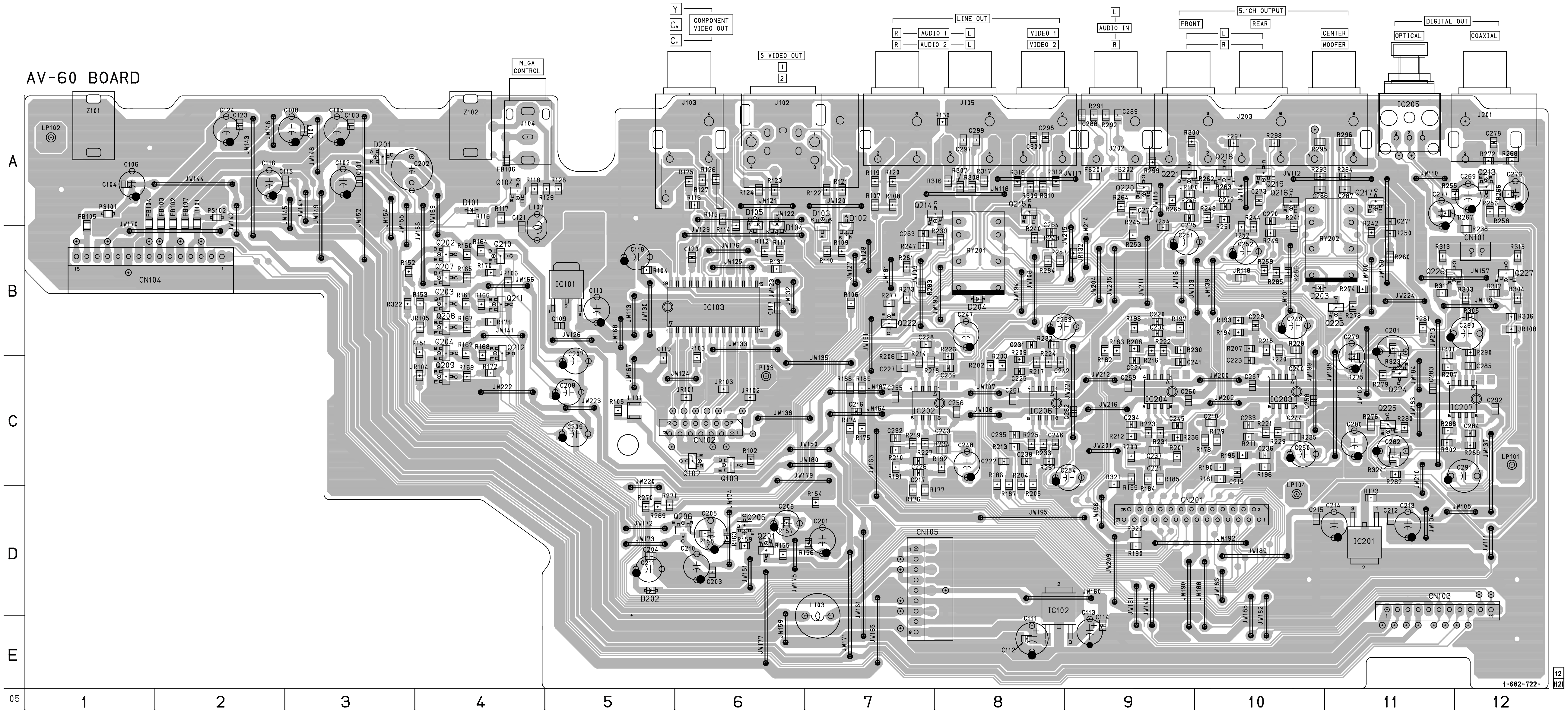


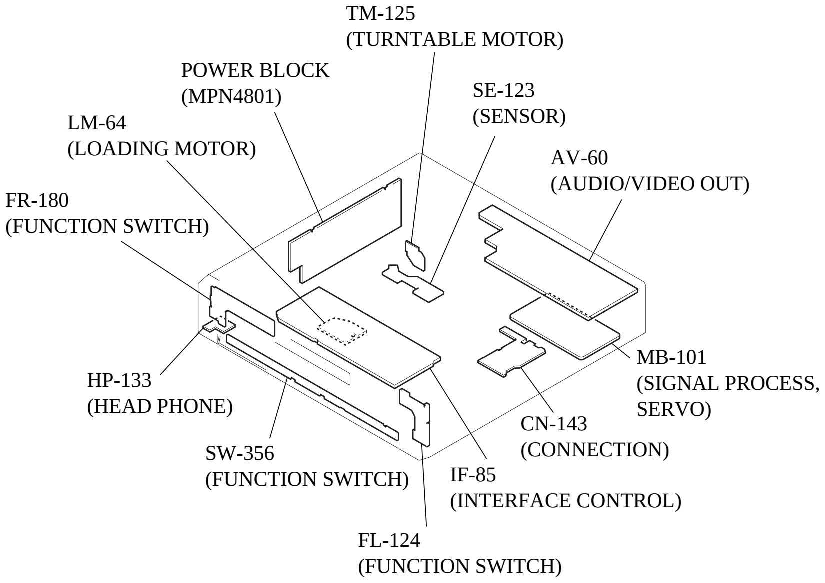
4 Vp-p (2.84 MHz)

There are a few cases that the part isn't mounted in this model is printed on this diagram.

AV-60 (AUDIO/VIDEO OUT) PRINTED WIRING BOARD

– Ref. No.: AV-60 board; 1,000 series –


Y
Cb
Cr
COMPONENT VIDEO OUT
MEGA CONTROL
S VIDEO OUT
1
2
LINE OUT
R
L
AUDIO 1
AUDIO 2
VIDEO 1
VIDEO 2
AUDIO IN
5.1CH OUTPUT
FRONT
REAR
CENTER
WOOFER
DIGITAL OUT
OPTICAL
COAXIAL
AV-60 BOARD
A
B
C
D
E
05
1
2
3
4
5
6
7
8
9
10
11
12
J103
J102
J105
J202
J203
J201
J104
IC101
IC102
IC103
IC201
IC202
IC203
IC204
IC205
IC206
IC207
CN101
CN102
CN103
CN104
CN105
CN201
RY201
RY202
L101
L102
L103
1-682-722-12

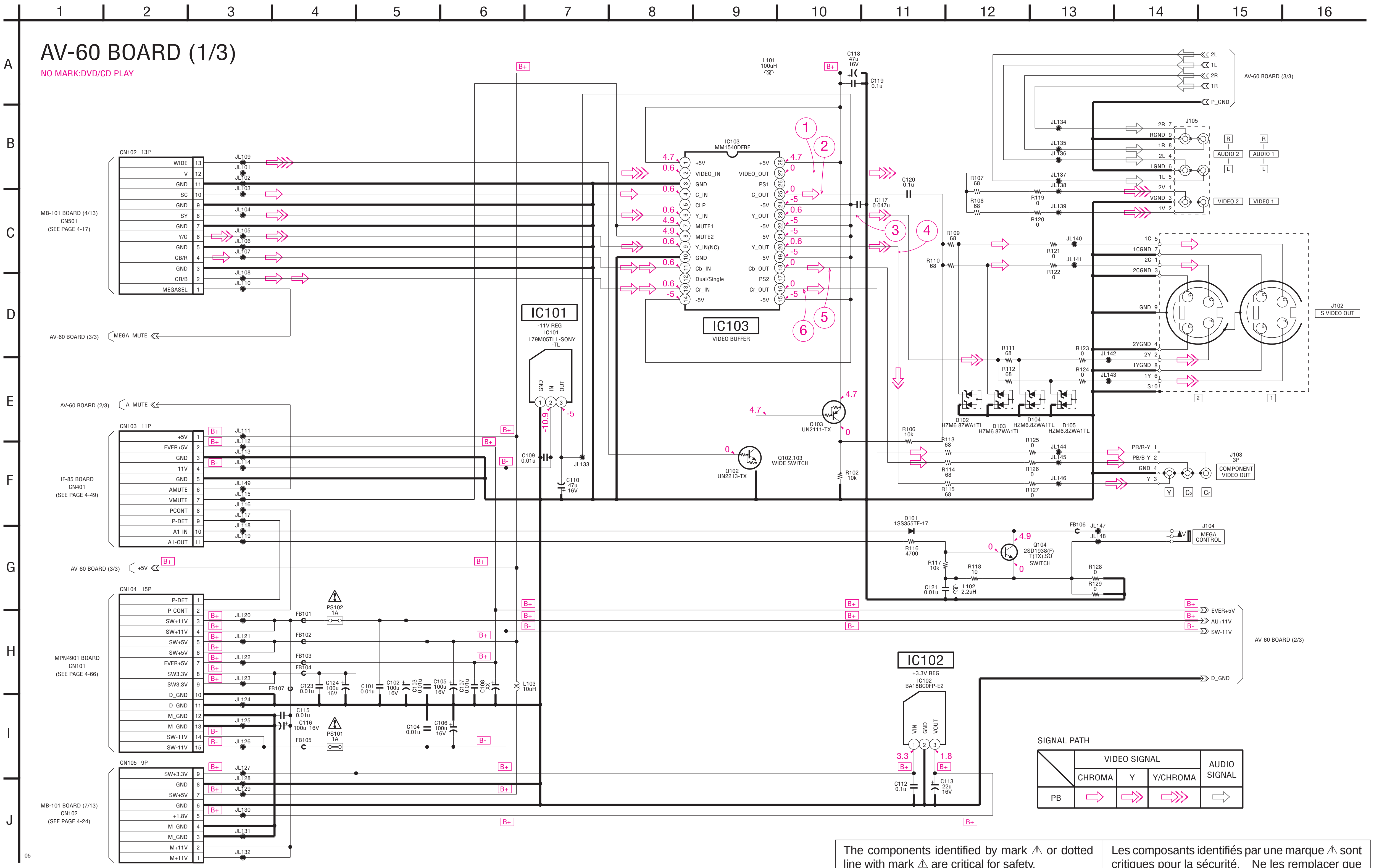

TM-125
(TURNTABLE MOTOR)
POWER BLOCK
(MPN4801)
SE-123
(SENSOR)
LM-64
(LOADING MOTOR)
AV-60
(AUDIO/VIDEO OUT)
FR-180
(FUNCTION SWITCH)
MB-101
(SIGNAL PROCESS,
SERVO)
HP-133
(HEAD PHONE)
CN-143
(CONNECTION)
SW-356
(FUNCTION SWITCH)
IF-85
(INTERFACE CONTROL)
FL-124
(FUNCTION SWITCH)

AV-60 BOARD

CN101	B-12	Q102	C-6
CN102	C-6	Q103	C-6
CN103	D-11	Q104	A-4
CN104	B-2	Q201	B-6
CN105	D-7	Q202	B-4
CN201	D-10	Q203	B-4
		Q204	B-4
D101	A-4	Q205	D-6
D102	A-7	Q206	D-6
D103	A-7	Q207	B-4
D104	A-6	Q208	B-4
D105	A-6	Q209	C-4
D201	A-3	Q210	B-4
D202	D-5	Q211	B-4
D203	B-10	Q212	B-4
D204	B-8	Q213	A-12
		Q214	A-7
IC101	B-5	Q215	A-8
IC102	D-8	Q216	A-10
IC103	B-6	Q217	A-11
IC201	D-11	Q218	A-10
IC202	C-7	Q219	A-10
IC203	C-10	Q220	A-9
IC204	C-9	Q221	A-9
IC205	A-11	Q222	B-7
IC206	C-8	Q223	B-11
IC207	C-12	Q226	B-12
		Q227	B-12

AV-60 (VIDEO BUFFER) SCHEMATIC DIAGRAM • See page 4-37 for printed wiring board.

– Ref. No.: AV-60 board; 1,000 series –


AV-60 BOARD (1/3)
NO MARK:DVD/CD PLAY
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
A B C D E F G H I J
CN102 13P
WIDE
V
GND
SC
SY
Y/G
CB/R
CR/B
MEGASEL
MB-101 BOARD (4/13) CN501 (SEE PAGE 4-17)
AV-60 BOARD (3/3) MEGA_MUTE
AV-60 BOARD (2/3) A_MUTE
CN103 11P
+5V
EVER+5V
-11V
AMUTE
VMUTE
PCONT
P-DET
A1-IN
A1-OUT
IF-85 BOARD CN401 (SEE PAGE 4-49)
AV-60 BOARD (3/3) +5V
CN104 15P
P-CONT
SW+11V
SW+5V
SW3.3V
D_GND
M_GND
SW-11V
MPN4901 BOARD CN101 (SEE PAGE 4-66)
CN105 9P
SW+3.3V
+1.8V
M+11V
MB-101 BOARD (7/13) CN102 (SEE PAGE 4-24)
IC101
-11V REG
IC101
L79M05TLL-SONY -TL
IC103
MM1540DFBE
VIDEO BUFFER
+5V
VIDEO_IN
VIDEO_OUT
C_IN
C_OUT
CLP
Y_IN
Y_OUT
MUTE1
MUTE2
Y_IN(NC)
Cb_IN
Cb_OUT
Dual/Single
Cr_IN
Cr_OUT
PS1
PS2
-5V
Q102 UN2213-TX
Q103 UN2111-TX
Q102,103 WIDE SWITCH
D101 1SS355TE-17
Q104 2SD1938(F)-T(TX).SO SWITCH
D102 HZM6.8ZWA1TL
D103 HZM6.8ZWA1TL
D104 HZM6.8ZWA1TL
D105 HZM6.8ZWA1TL
IC102
+3.3V REG
IC102
BA18BC0FP-E2
VIN GND VOUT
PS101 1A
PS102 1A
L101 100uH
L103 10uH
AV-60 BOARD (3/3)
2L
1L
2R
1R
P_GND
J105
AUDIO 2
AUDIO 1
VIDEO 2
VIDEO 1
J102 S VIDEO OUT
J103 3P COMPONENT VIDEO OUT
J104 MEGA CONTROL
AV-60 BOARD (2/3)
EVER+5V
AU+11V
SW-11V
D_GND
B+
B-

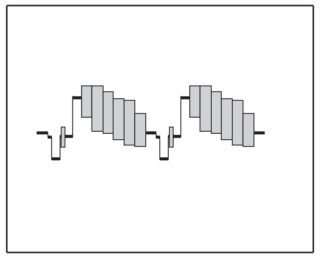
SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
PB	⇨	⇨⇨	⇨⇨⇨	⇨

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

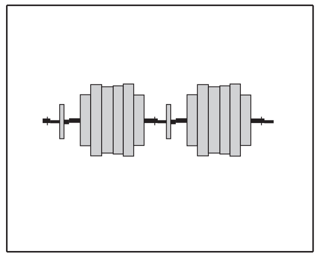
• Waveforms

❶ IC103 ㉗



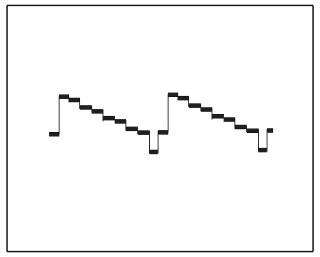
2.4 Vp-p (H)

❷ IC103 ㉕



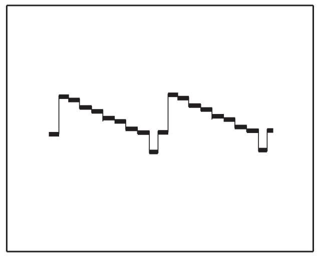
1.8 Vp-p (H)

❸ IC103 ㉓



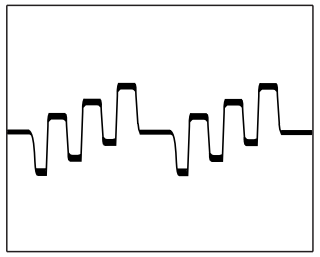
2.3 Vp-p (H)

❹ IC103 ⑳



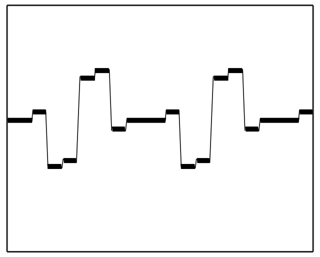
2.1 Vp-p (H)

❺ IC103 ⑱



1.3 Vp-p (H)

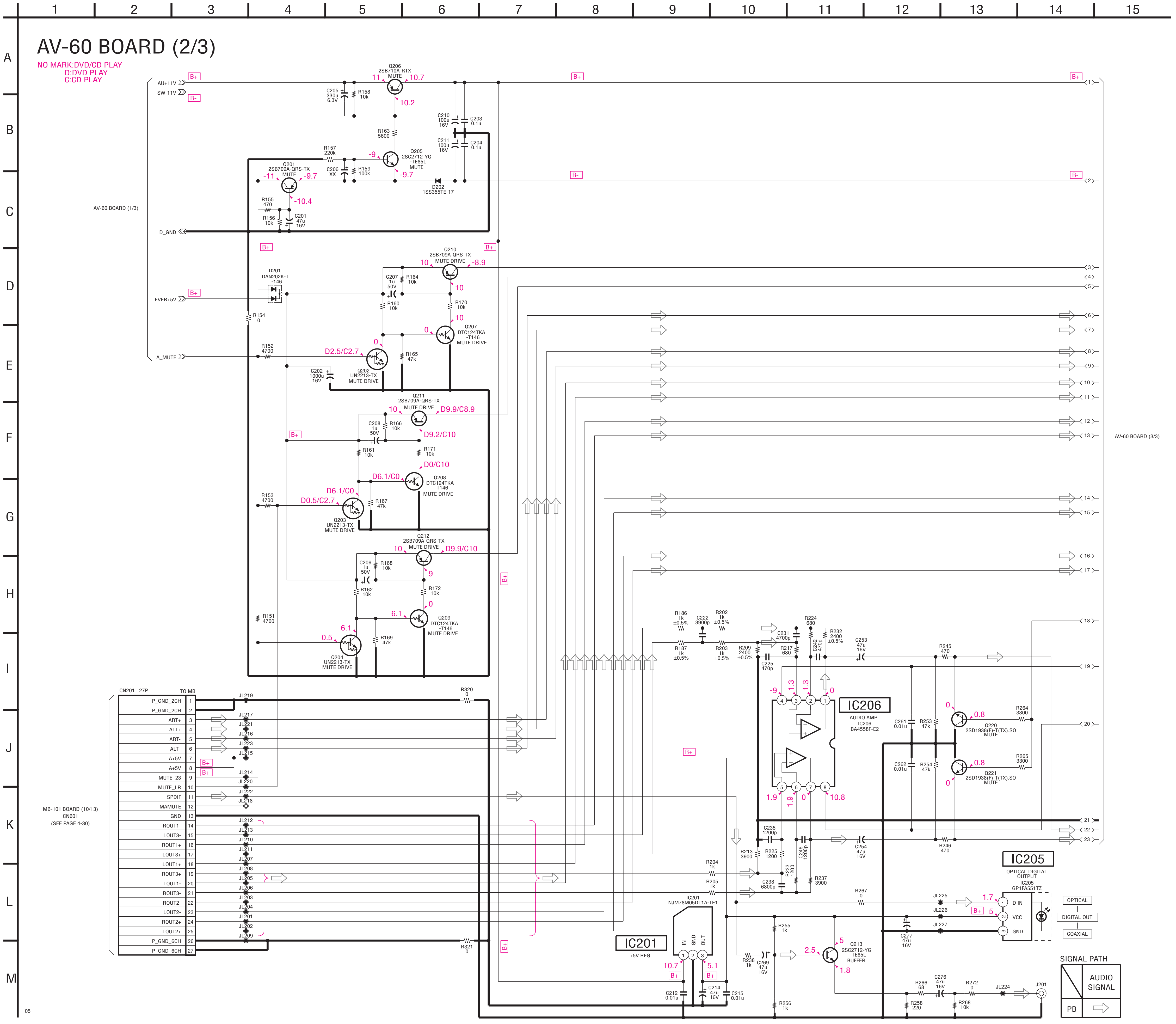
❻ IC103 ⑯



1.3 Vp-p (H)

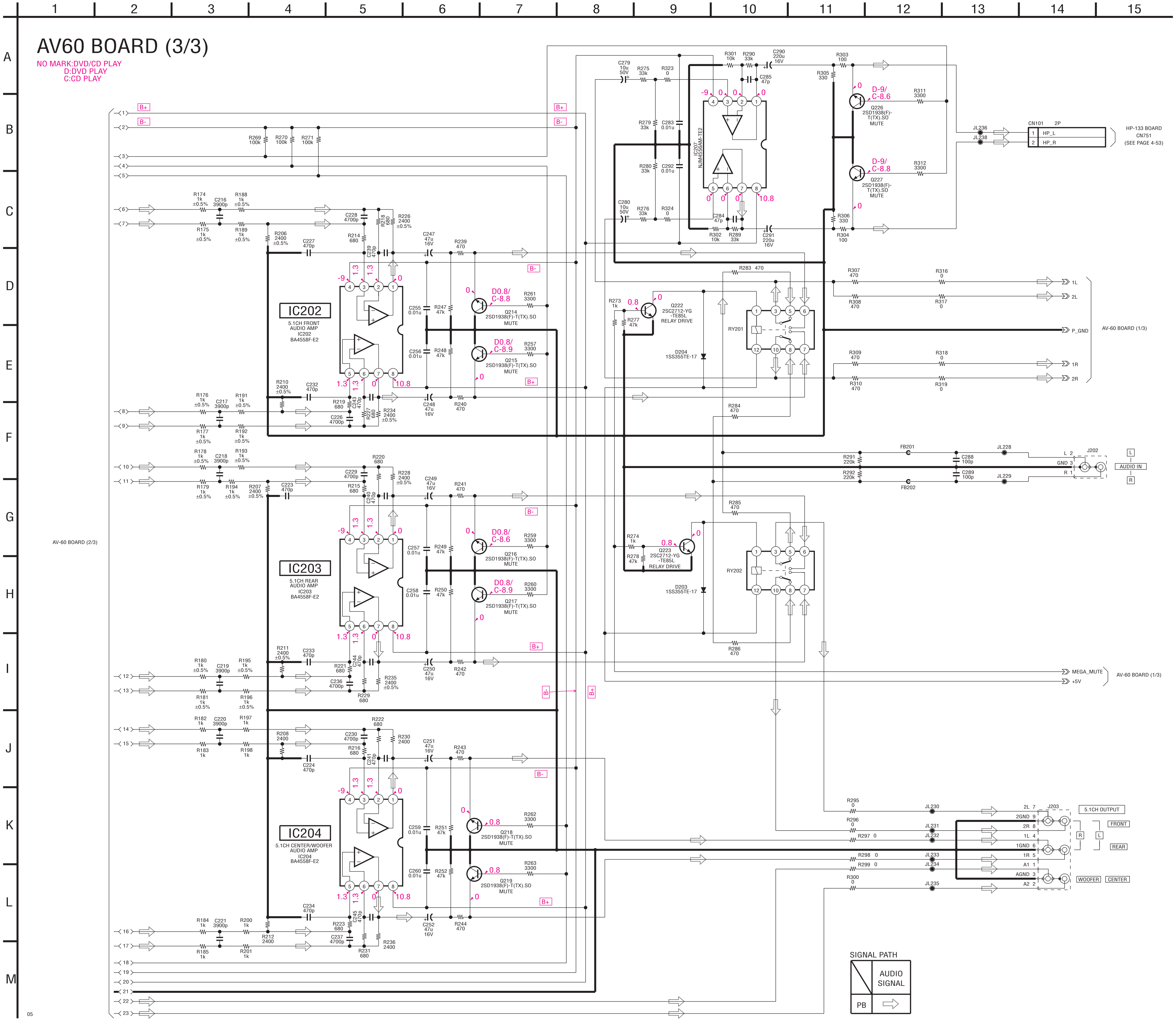
AV-60 (MUTE) SCHEMATIC DIAGRAM • See page 4-37 for printed wiring board.

– Ref. No.: AV-60 board; 1,000 series –


AV-60 BOARD (2/3)
NO MARK:DVD/CD PLAY
D:DVD PLAY
C:CD PLAY
AU+11V
SW-11V
D_GND
EVER+5V
A_MUTE
AV-60 BOARD (1/3)
AV-60 BOARD (3/3)
Q206 2SB710A-RTX MUTE
Q205 2SC2712-YG -TE85L MUTE
Q201 2SB709A-QRS-TX MUTE
Q210 2SB709A-QRS-TX MUTE DRIVE
Q207 DTC124TKA -T146 MUTE DRIVE
Q202 UN2213-TX MUTE DRIVE
Q211 2SB709A-QRS-TX MUTE DRIVE
Q208 DTC124TKA -T146 MUTE DRIVE
Q203 UN2213-TX MUTE DRIVE
Q212 2SB709A-QRS-TX MUTE DRIVE
Q209 DTC124TKA -T146 MUTE DRIVE
Q204 UN2213-TX MUTE DRIVE
D201 DAN202K-T -146
D202 1SS355TE-17
CN201 27P
TO MB
P_GND_2CH
ART+
ALT+
ART-
ALT-
A+5V
MUTE_23
MUTE_LR
SPDIF
MAMUTE
GND
ROUT1-
LOUT3-
ROUT1+
LOUT3+
LOUT1+
ROUT3+
LOUT1-
ROUT3-
ROUT2-
LOUT2-
ROUT2+
LOUT2+
P_GND_6CH
MB-101 BOARD (10/13) CN601 (SEE PAGE 4-30)
IC206
AUDIO AMP IC206 BA4558F-E2
Q220 2SD1938(F)-T(TX).SO MUTE
Q221 2SD1938(F)-T(TX).SO MUTE
IC205
OPTICAL DIGITAL OUTPUT IC205 GP1FA551TZ
D IN
VCC
GND
OPTICAL
DIGITAL OUT
COAXIAL
IC201
IC201 NJM78M05DL1A-TE1
+5V REG
IN GND OUT
Q213 2SC2712-YG -TE85L BUFFER
J201
SIGNAL PATH
AUDIO SIGNAL
PB

AV-60 (AUDIO AMP) SCHEMATIC DIAGRAM • See page 4-37 for printed wiring board.

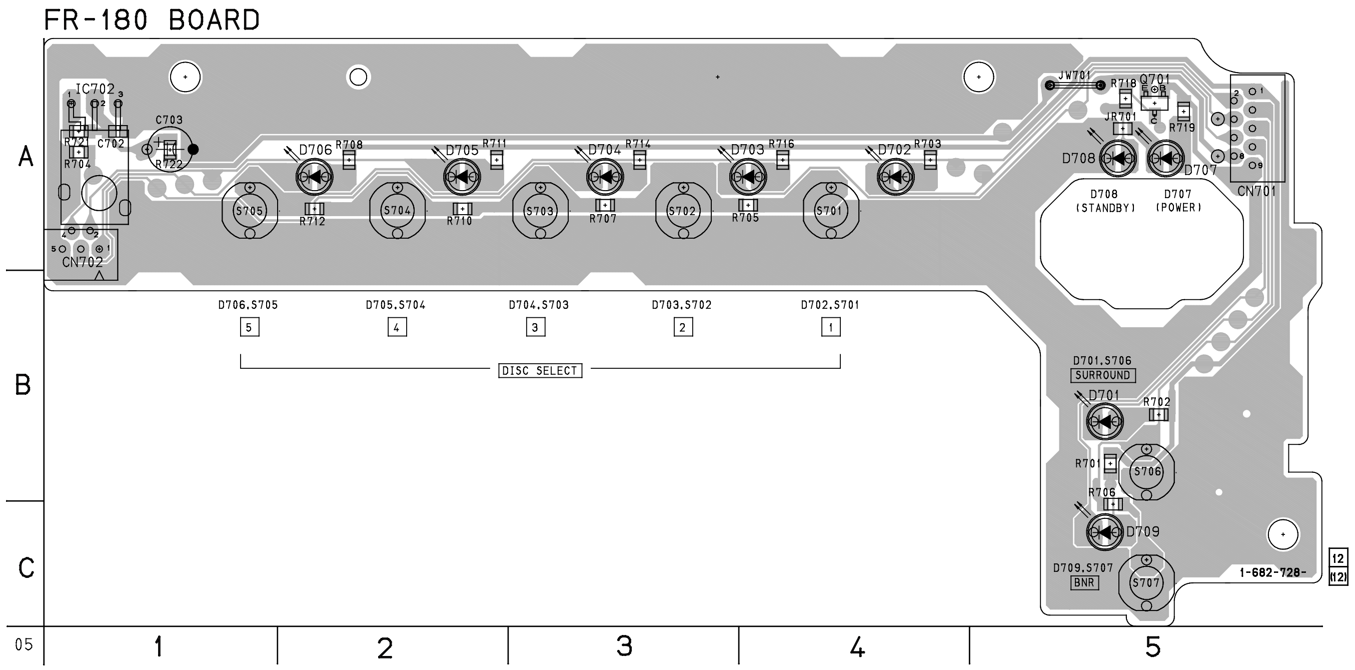
– Ref. No.: AV-60 board; 1,000 series –

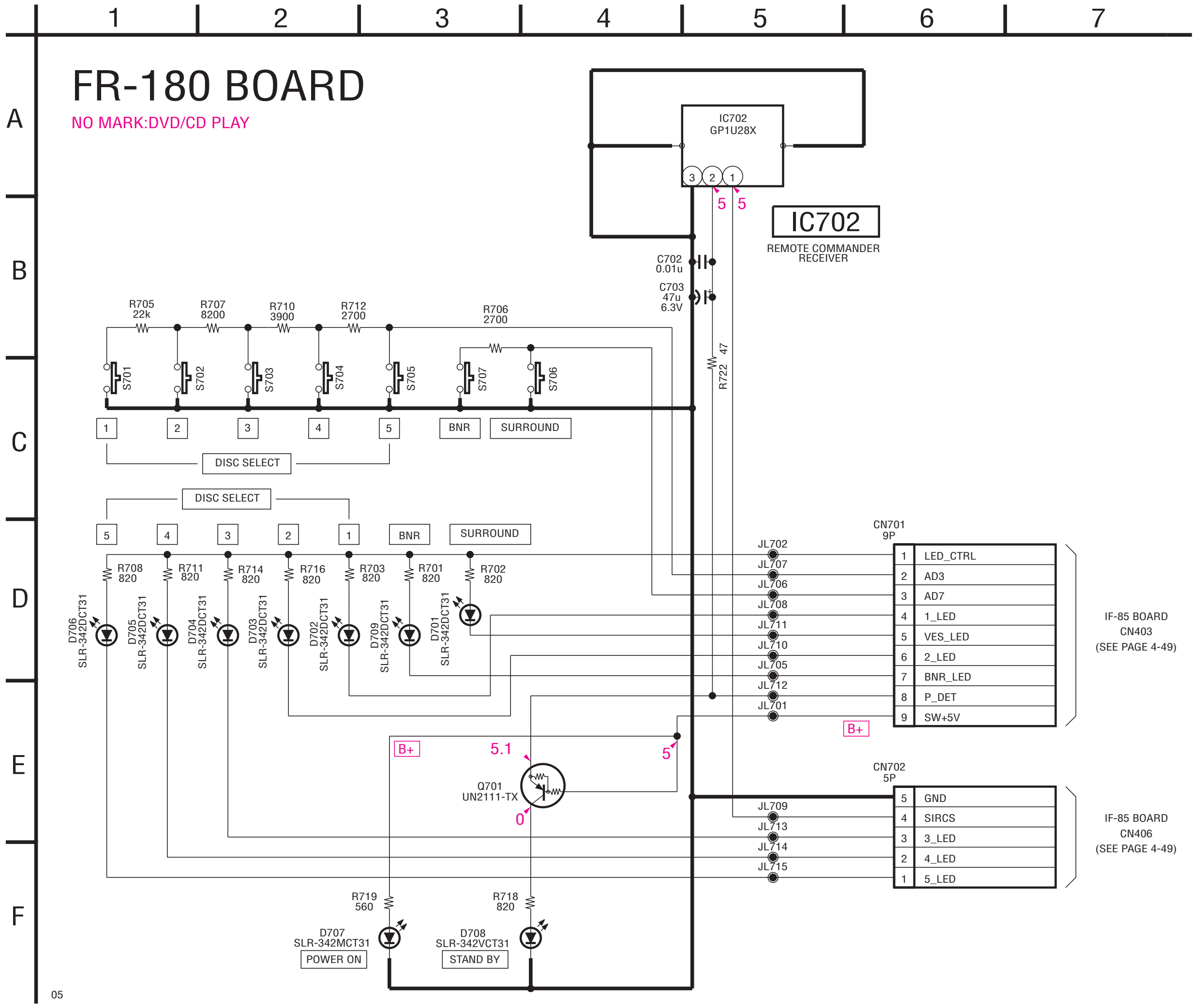

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
K
L
M
AV60 BOARD (3/3)
NO MARK:DVD/CD PLAY
D:DVD PLAY
C:CD PLAY
B+
B-
IC202
5.1CH FRONT AUDIO AMP
IC202 BA4558F-E2
IC203
5.1CH REAR AUDIO AMP
IC203 BA4558F-E2
IC204
5.1CH CENTER/WOOFER AUDIO AMP
IC204 BA4558F-E2
IC207 NJM4556AM-TE2
Q214 2SD1938(F)-T(TX).SO MUTE
Q215 2SD1938(F)-T(TX).SO MUTE
Q216 2SD1938(F)-T(TX).SO MUTE
Q217 2SD1938(F)-T(TX).SO MUTE
Q218 2SD1938(F)-T(TX).SO MUTE
Q219 2SD1938(F)-T(TX).SO MUTE
Q226 2SD1938(F)-T(TX).SO MUTE
Q227 2SD1938(F)-T(TX).SO MUTE
Q222 2SC2712-YG -TE85L RELAY DRIVE
Q223 2SC2712-YG -TE85L RELAY DRIVE
D204 1SS355TE-17
D203 1SS355TE-17
RY201
RY202
FB201
FB202
J202
L
AUDIO IN
R
J203
5.1CH OUTPUT
FRONT
REAR
WOOFER
CENTER
CN101 2P
HP_L
HP_R
HP-133 BOARD CN751 (SEE PAGE 4-53)
1L
2L
P_GND
1R
2R
AV-60 BOARD (1/3)
MEGA_MUTE
+5V
AV-60 BOARD (1/3)
AV-60 BOARD (2/3)
SIGNAL PATH
AUDIO SIGNAL
PB
05

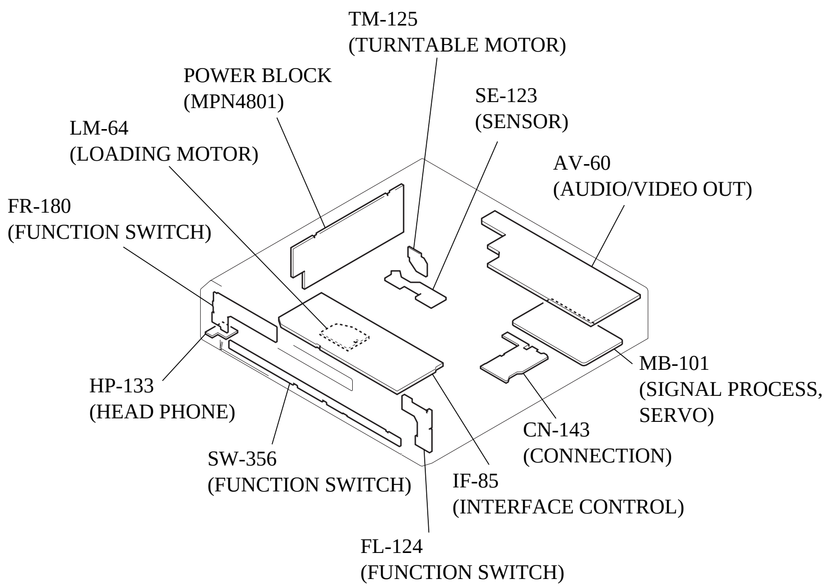
FR-180 (FUNCTION SWITCH) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

– Ref. No.: FR-180 board; 3,000 series –

There are a few cases that the part isn't mounted in this model is printed on this diagram.


FR-180 BOARD
IC702
C703
C702
R704
R721
R722
CN702
D706
D705
D704
D703
D702
R708
R711
R714
R716
R703
S705
S704
S703
S702
S701
R712
R710
R707
R705
JW701
R718
Q701
JR701
R719
D708
D707
CN701
D708 (STANDBY)
D707 (POWER)
D706,S705
D705,S704
D704,S703
D703,S702
D702,S701
DISC SELECT
D701,S706
SURROUND
D701
R702
R701
S706
R706
D709
D709,S707
BNR
S707
1-682-728-
12
(12)
A
B
C
05
1
2
3
4
5


1
2
3
4
5
6
7
A
B
C
D
E
F
FR-180 BOARD
NO MARK:DVD/CD PLAY
IC702
GP1U28X
IC702
REMOTE COMMANDER RECEIVER
C702
0.01u
C703
47u
6.3V
R722
47
R705
22k
R707
8200
R710
3900
R712
2700
R706
2700
S701
S702
S703
S704
S705
S707
S706
DISC SELECT
BNR
SURROUND
R708
820
R711
820
R714
820
R716
820
R703
820
R701
820
R702
820
D706
SLR-342DCT31
D705
SLR-342DCT31
D704
SLR-342DCT31
D703
SLR-342DCT31
D702
SLR-342DCT31
D709
SLR-342DCT31
D701
SLR-342DCT31
CN701
9P
LED_CTRL
AD3
AD7
1_LED
VES_LED
2_LED
BNR_LED
P_DET
SW+5V
IF-85 BOARD
CN403
(SEE PAGE 4-49)
CN702
5P
GND
SIRCS
3_LED
4_LED
5_LED
IF-85 BOARD
CN406
(SEE PAGE 4-49)
JL701
JL702
JL705
JL706
JL707
JL708
JL709
JL710
JL711
JL712
JL713
JL714
JL715
B+
5.1
5
0
Q701
UN2111-TX
R719
560
R718
820
D707
SLR-342MCT31
POWER ON
D708
SLR-342VCT31
STAND BY
05


TM-125
(TURNTABLE MOTOR)
POWER BLOCK
(MPN4801)
SE-123
(SENSOR)
LM-64
(LOADING MOTOR)
AV-60
(AUDIO/VIDEO OUT)
FR-180
(FUNCTION SWITCH)
HP-133
(HEAD PHONE)
MB-101
(SIGNAL PROCESS,
SERVO)
CN-143
(CONNECTION)
SW-356
(FUNCTION SWITCH)
IF-85
(INTERFACE CONTROL)
FL-124
(FUNCTION SWITCH)

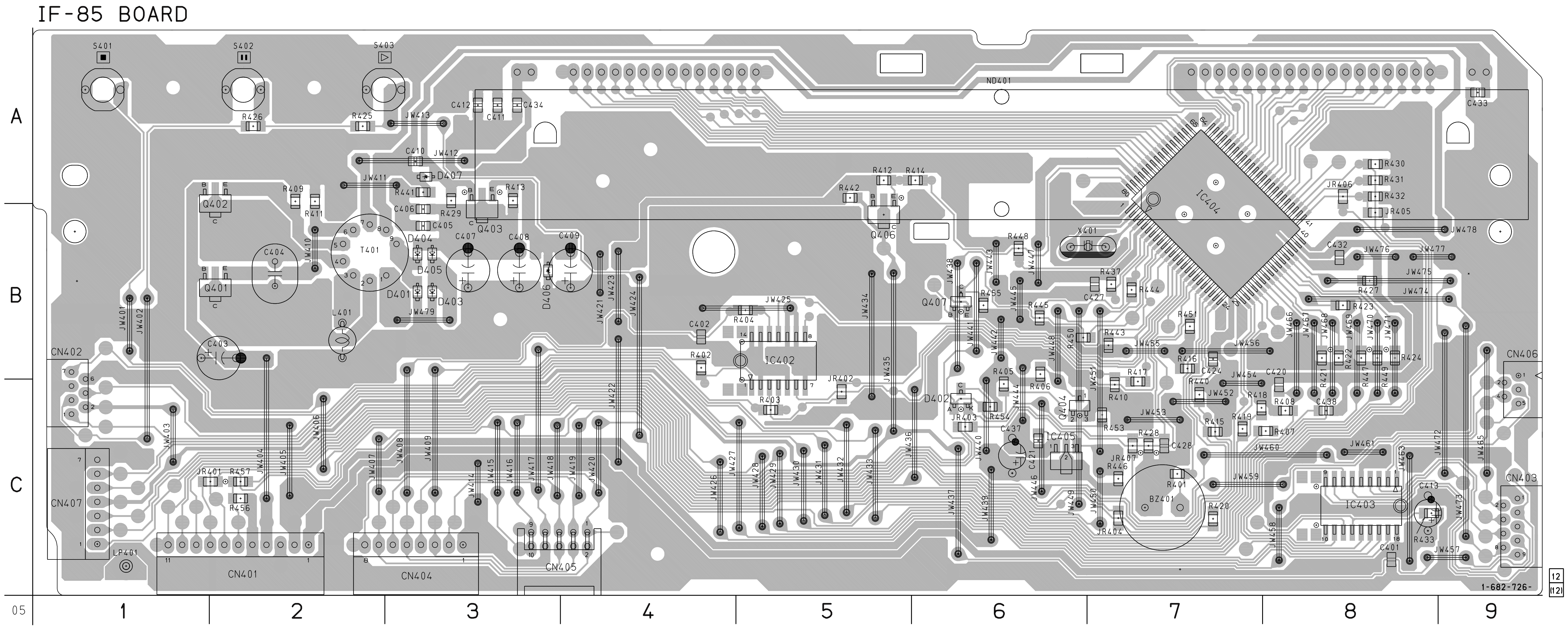
FR-180 BOARD

CN701	A-5
CN702	A-1
D701	B-5
D702	A-4
D703	A-4
D704	A-3
D705	A-2
D706	A-2
D707	A-5
D708	A-5
D709	C-5
IC702	A-1
Q701	A-5

IF-85 (INTERFACE CONTROL) PRINTED WIRING BOARD

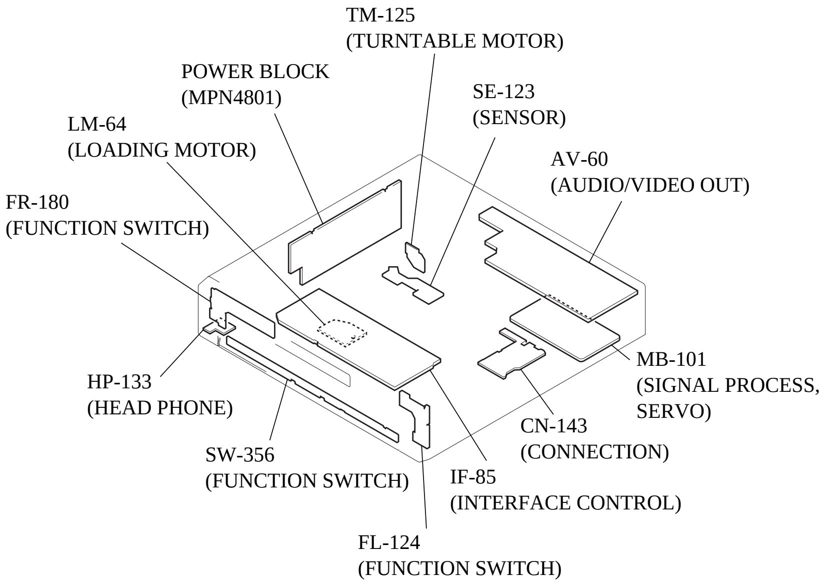
– Ref. No.: IF-85 board; 1,000 series –

There are a few cases that the part isn't mounted in this model is printed on this diagram.


IF-85 BOARD
S401
S402
S403
ND401
IC402
IC403
IC404
IC405
Q401
Q402
Q403
Q406
Q407
Q404
T401
L401
X401
BZ401
LP401
CN401
CN402
CN403
CN404
CN405
CN406
CN407
D401
D402
D403
D404
D405
D406
D407
1-682-726-
12
(12)
05
A
B
C
1
2
3
4
5
6
7
8
9

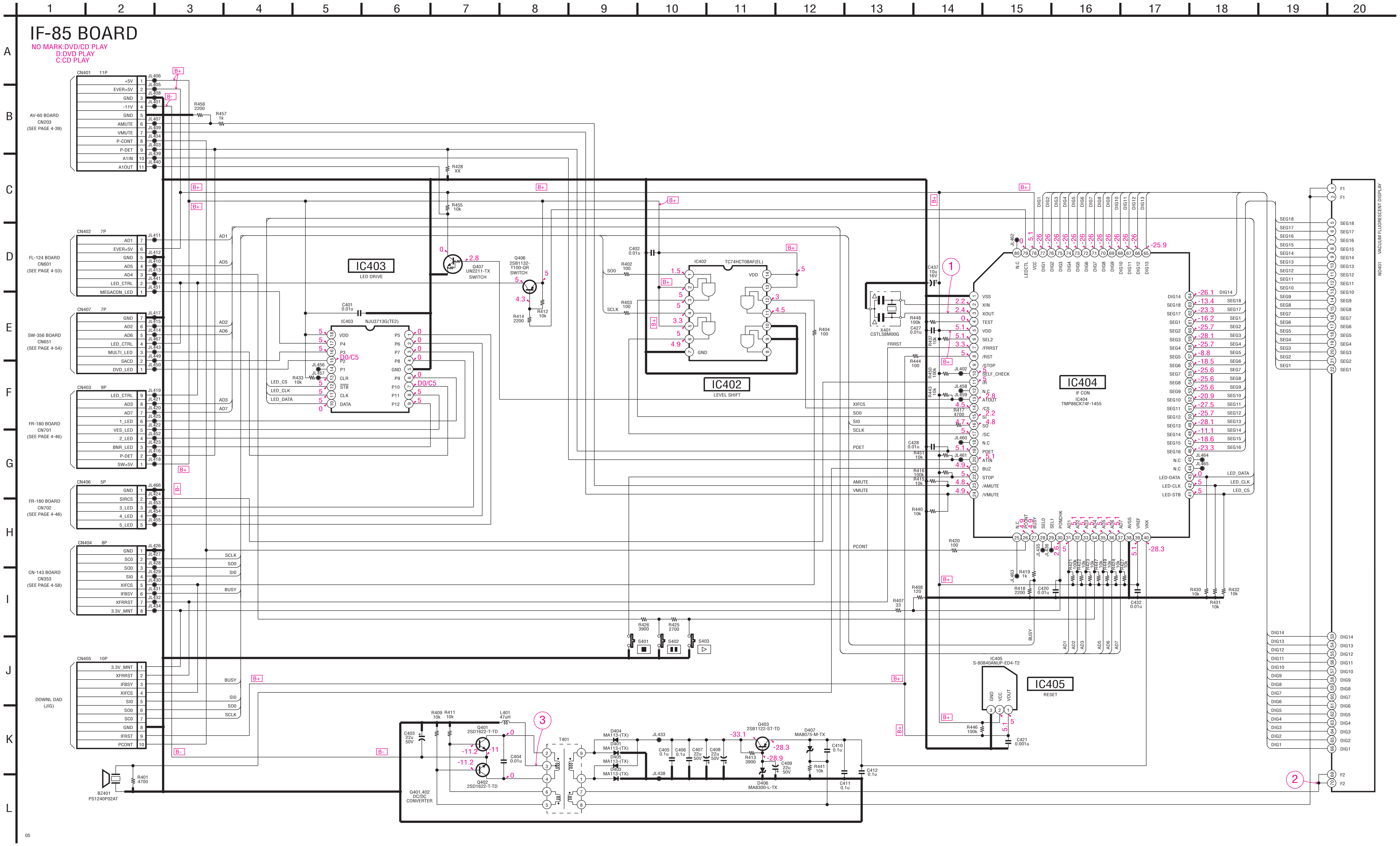
IF-85 BOARD

CN401	C-2
CN402	C-1
CN403	C-9
CN404	C-3
CN405	C-4
CN406	B-9
CN407	C-1
D401	A-3
D403	B-3
D404	B-3
D405	B-3
D406	B-3
D407	B-3
IC402	B-5
IC403	C-8
IC404	A-7
IC405	C-6
Q401	B-1
Q402	A-1
Q403	B-3
Q406	B-5
Q407	B-6


TM-125
(TURNTABLE MOTOR)
POWER BLOCK
(MPN4801)
SE-123
(SENSOR)
LM-64
(LOADING MOTOR)
AV-60
(AUDIO/VIDEO OUT)
FR-180
(FUNCTION SWITCH)
MB-101
(SIGNAL PROCESS,
SERVO)
HP-133
(HEAD PHONE)
CN-143
(CONNECTION)
SW-356
(FUNCTION SWITCH)
IF-85
(INTERFACE CONTROL)
FL-124
(FUNCTION SWITCH)

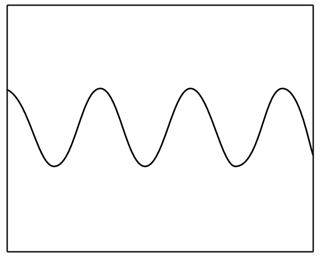
IF-85 (IF CON) SCHEMATIC DIAGRAM

– Ref. No.: IF-85 board; 1,000 series –


IF-85 BOARD
NO MARK:DVD/CD PLAY
D:DVD PLAY
C:CD PLAY
CN401 11P
AV-60 BOARD CN203 (SEE PAGE 4-39)
CN402 7P
FL-124 BOARD CN601 (SEE PAGE 4-53)
CN407 7P
SW-356 BOARD CN651 (SEE PAGE 4-54)
CN403 9P
FR-180 BOARD CN701 (SEE PAGE 4-46)
CN406 5P
FR-180 BOARD CN702 (SEE PAGE 4-46)
CN404 8P
CN-143 BOARD CN353 (SEE PAGE 4-58)
CN405 10P
DOWNL DAD (JIG)
IC403
LED DRIVE
IC403 NJU3713G(TE2)
Q407 UN2211-TX SWITCH
Q406 2SB1132-T100-QR SWITCH
IC402
LEVEL SHIFT
IC402 TC74HCT08AF(EL)
X401 CSTLS8M00G
IC404
IF CON
IC404 TMP86CK74F-1455
IC405
RESET
IC405 S-80840ANUP-ED4-T2
ND401 VACUUM FLUORESCENT DISPLAY
Q401,402 DC/DC CONVERTER
Q401 2SD1622-T-TD
Q402 2SD1622-T-TD
Q403 2SB1122-ST-TD
T401
D404 MA113-(TX)
D405 MA113-(TX)
D401 MA113-(TX)
D403 MA113-(TX)
D407 MA8075-M-TX
D406 MA8300-L-TX
BZ401 PS1240P02AT
S401
S402
S403
A B C D E F G H I J K L
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

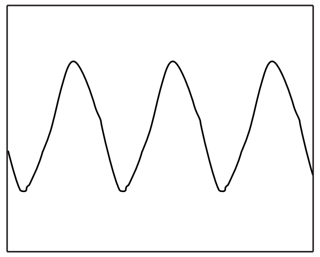
- **Waveforms**

❶ IC404 ③



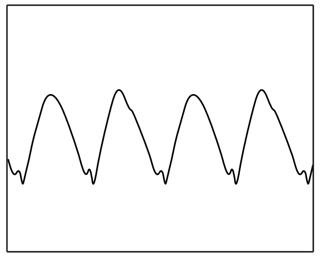
5 Vp-p (8 MHz)

❷ ND401 (69), (70)



8 Vp-p (200 kHz)

❸ T401 ③



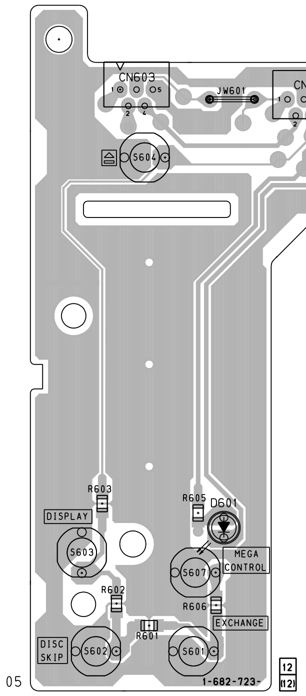
20 Vp-p (409 kHz)

FL-124 (FUNCTION SWITCH), SW-356 (FUNCTION SWITCH), HP-133 (HEADPHONE) PRINTED WIRING BOARDS

– Ref. No.: FL-124 board, SW-356 board and HP-133 board; 3,000 series –

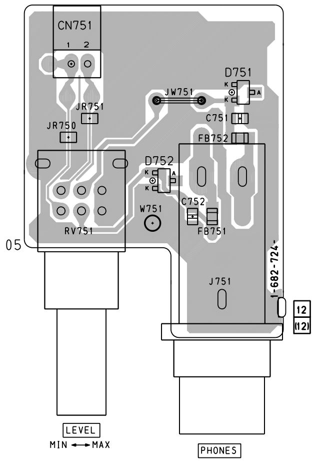
There are a few cases that the part isn't mounted in this model is printed on this diagram.

FL-124 BOARD

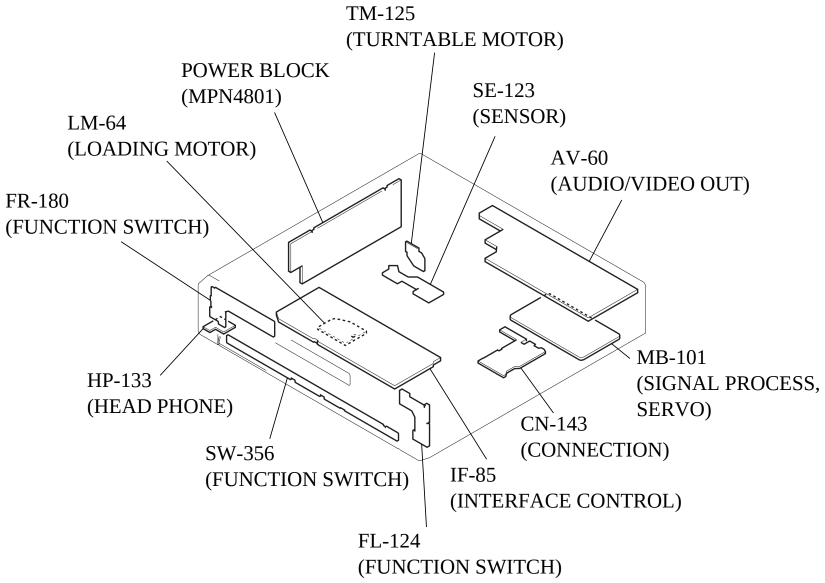


CN603
JW601
CN601
R604
S604
S605
S606
R603
DISPLAY
S603
R605
D601
MEGA CONTROL
S607
R602
R606
EXCHANGE
R601
DISC SKIP
S602
S601
1-682-723-
12
05

HP-133 BOARD

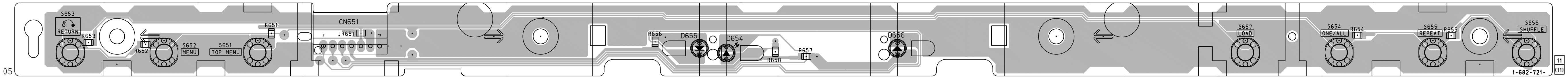


CN751
D751
JR751
JW751
JR750
C751
FB752
D752
C752
W751
RV751
FB751
J751
1-682-724-
12
05
LEVEL
MIN ←→ MAX
PHONES



TM-125
(TURNTABLE MOTOR)
POWER BLOCK
(MPN4801)
SE-123
(SENSOR)
LM-64
(LOADING MOTOR)
AV-60
(AUDIO/VIDEO OUT)
FR-180
(FUNCTION SWITCH)
HP-133
(HEAD PHONE)
MB-101
(SIGNAL PROCESS,
SERVO)
CN-143
(CONNECTION)
SW-356
(FUNCTION SWITCH)
IF-85
(INTERFACE CONTROL)
FL-124
(FUNCTION SWITCH)

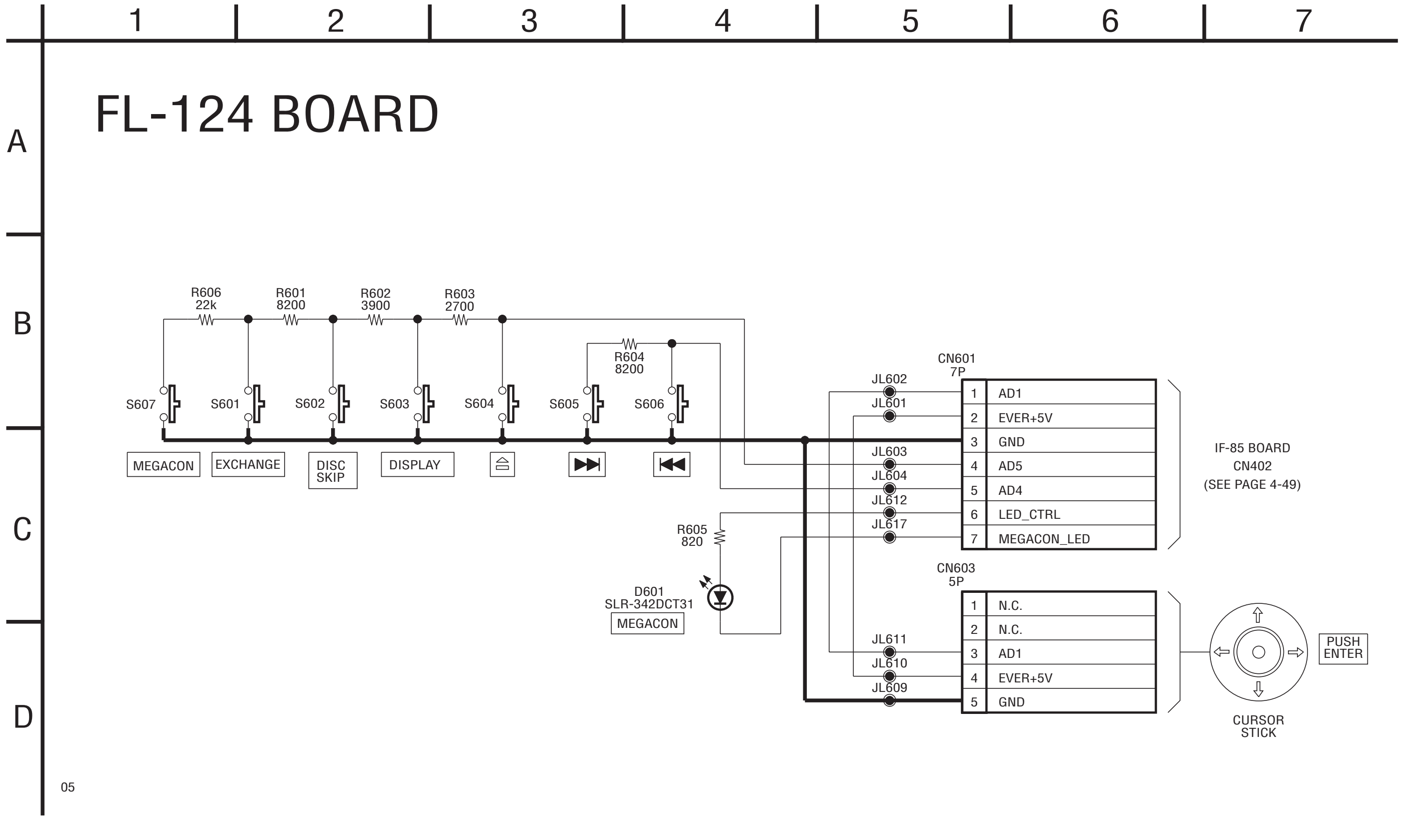
SW-356 BOARD

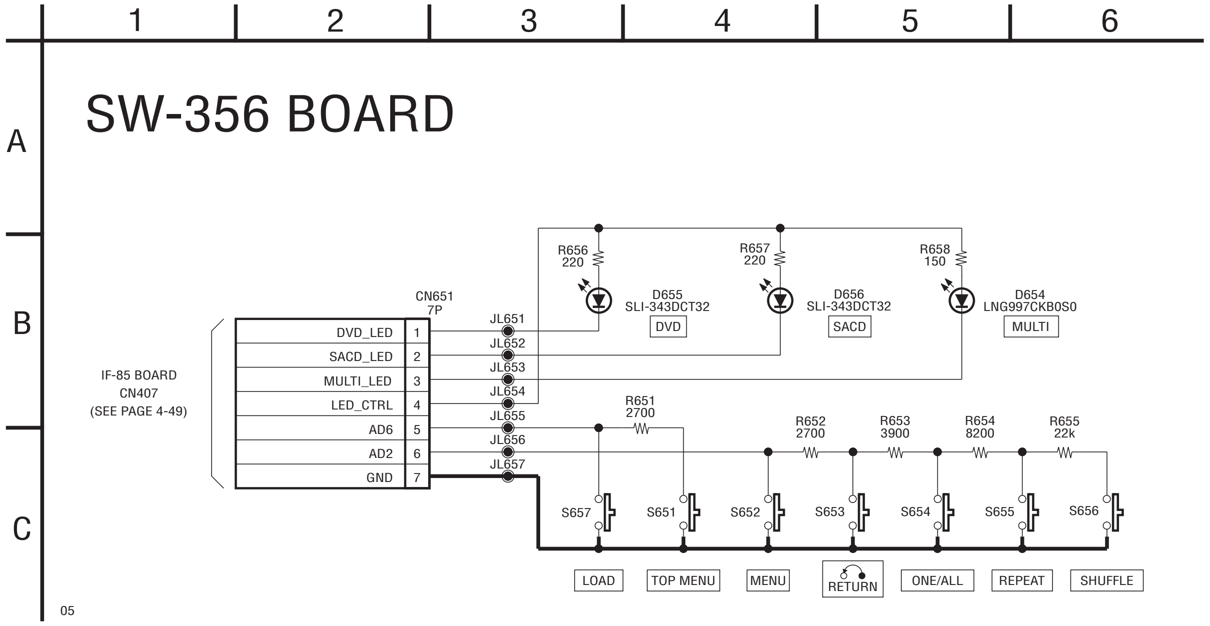


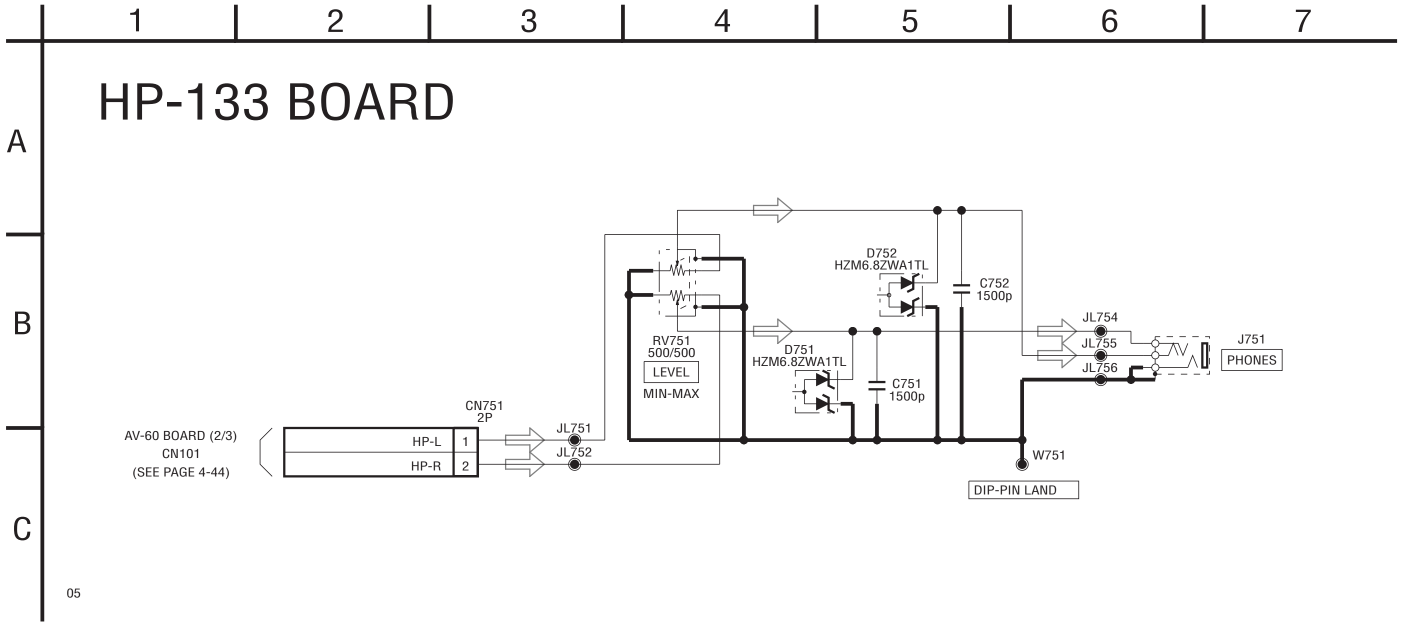
S653
RETURN
R653
R652
S652
MENU
S651
TOP MENU
R651
CN651
JR651
R656
D655
D654
R658
R657
D656
S657
LOAD
S654
ONE/ALL
R654
S655
REPEAT
R655
S656
SHUFFLE
1-682-721-
11
05

FL-124 (FUNCTION SWITCH), SW-356 (FUNCTION SWITCH), HP-133 (HEADPHONE) SCHEMATIC DIAGRAMS

– Ref. No.: FL-124 board, SW-356 board and HP-133 board; 3,000 series –


1 2 3 4 5 6 7
A B C D
FL-124 BOARD
R606 22k
R601 8200
R602 3900
R603 2700
R604 8200
S607 S601 S602 S603 S604 S605 S606
MEGACON
EXCHANGE
DISC SKIP
DISPLAY
R605 820
D601 SLR-342DCT31
MEGACON
CN601 7P
JL602 JL601 JL603 JL604 JL612 JL617
1 AD1
2 EVER+5V
3 GND
4 AD5
5 AD4
6 LED_CTRL
7 MEGACON_LED
IF-85 BOARD CN402 (SEE PAGE 4-49)
CN603 5P
JL611 JL610 JL609
1 N.C.
2 N.C.
3 AD1
4 EVER+5V
5 GND
PUSH ENTER
CURSOR STICK
05

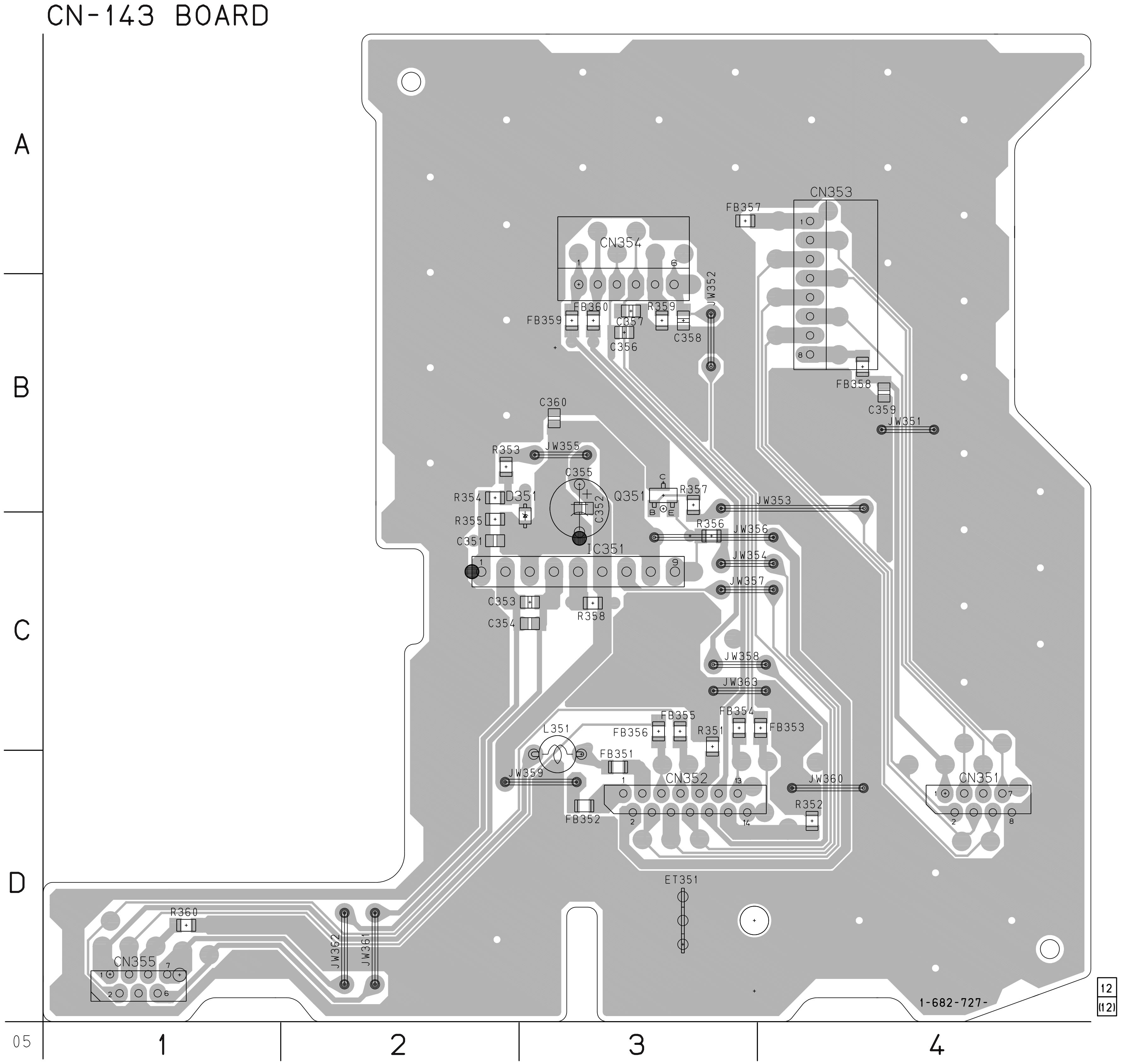

1 2 3 4 5 6
A B C
SW-356 BOARD
R656 220
R657 220
R658 150
D655 SLI-343DCT32
DVD
D656 SLI-343DCT32
SACD
D654 LNG997CKB0S0
MULTI
CN651 7P
IF-85 BOARD CN407 (SEE PAGE 4-49)
DVD_LED 1
SACD_LED 2
MULTI_LED 3
LED_CTRL 4
AD6 5
AD2 6
GND 7
JL651 JL652 JL653 JL654 JL655 JL656 JL657
R651 2700
R652 2700
R653 3900
R654 8200
R655 22k
S657 S651 S652 S653 S654 S655 S656
LOAD
TOP MENU
MENU
RETURN
ONE/ALL
REPEAT
SHUFFLE
05

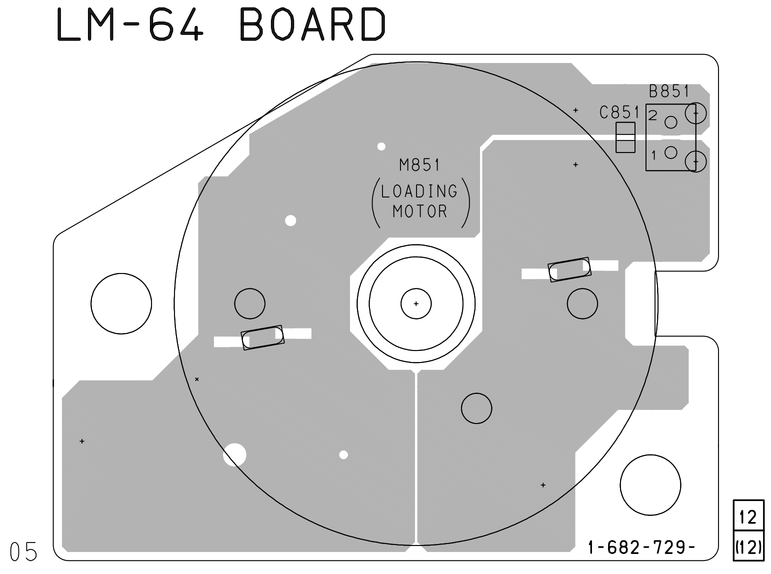

1 2 3 4 5 6 7
A B C
HP-133 BOARD
RV751 500/500
LEVEL
MIN-MAX
D752 HZM6.8ZWA1TL
D751 HZM6.8ZWA1TL
C752 1500p
C751 1500p
JL754 JL755 JL756
J751
PHONES
AV-60 BOARD (2/3) CN101 (SEE PAGE 4-44)
CN751 2P
HP-L 1
HP-R 2
JL751 JL752
W751
DIP-PIN LAND
05

CN-143 (CONNECTION), LM-64 (LOADING MOTOR) PRINTED WIRING BOARDS

– Ref. No.: CN-143 board, LM-64 board; 1,000 series –

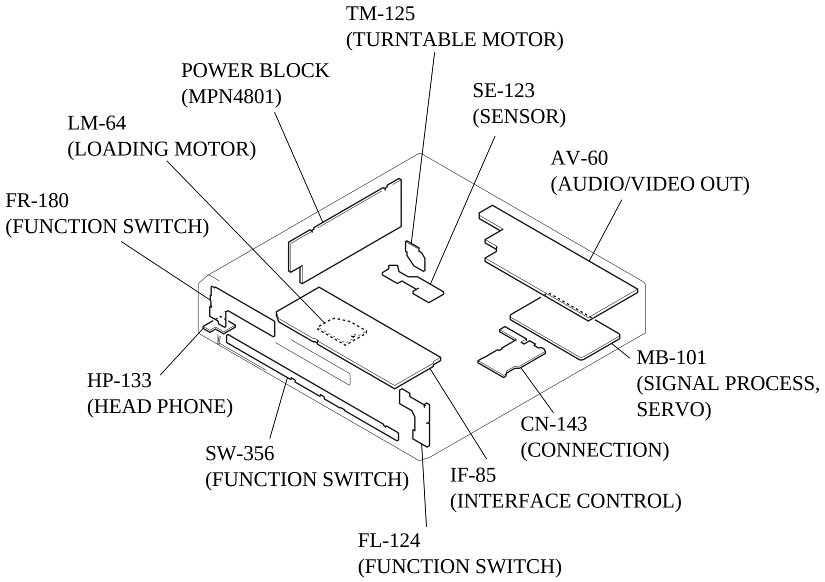
There are a few cases that the part isn't mounted in this model is printed on this diagram.


CN-143 BOARD
A
B
C
D
1
2
3
4
05
CN353
FB357
CN354
JW352
FB360
R359
FB359
C357
C356
C358
FB358
C359
JW351
C360
R353
JW355
C355
R354
D351
Q351
R357
R355
C352
R356
JW353
JW356
C351
IC351
JW354
JW357
C353
C354
R358
JW358
JW363
FB355
FB354
L351
FB356
R351
FB353
FB351
JW359
CN352
JW360
CN351
R352
FB352
ET351
R360
CN355
JW362
JW361
1-682-727-
12
(12)


LM-64 BOARD
B851
C851
M851
(LOADING MOTOR)
05
1-682-729-
12
(12)

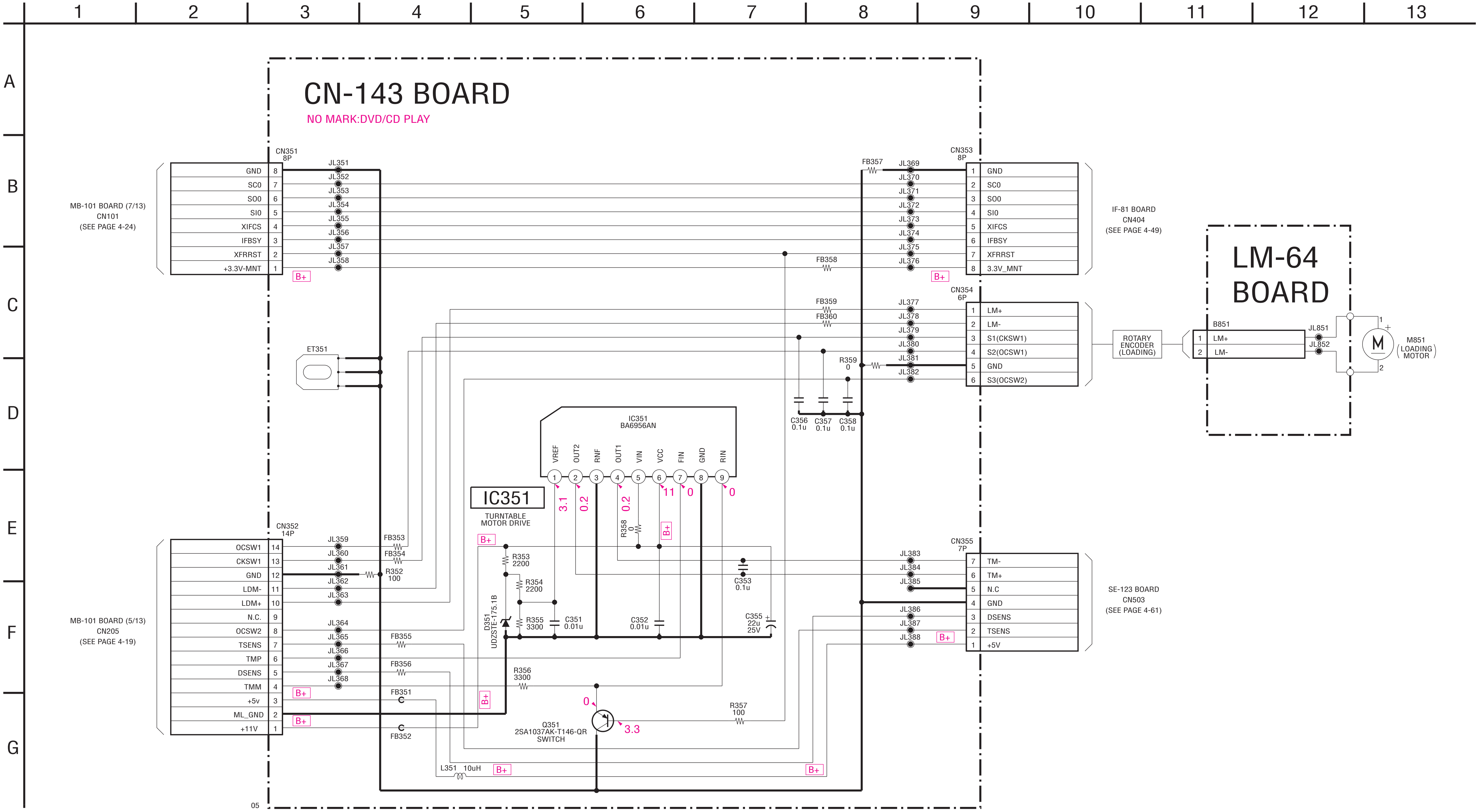
CN-143 BOARD

CN351	D-4
CN352	D-3
CN353	A-4
CN354	B-3
CN355	D-1
D351	B-2
IC351	C-2
Q351	B-3


TM-125
(TURNTABLE MOTOR)
POWER BLOCK
(MPN4801)
SE-123
(SENSOR)
LM-64
(LOADING MOTOR)
AV-60
(AUDIO/VIDEO OUT)
FR-180
(FUNCTION SWITCH)
MB-101
(SIGNAL PROCESS,
SERVO)
HP-133
(HEAD PHONE)
CN-143
(CONNECTION)
SW-356
(FUNCTION SWITCH)
IF-85
(INTERFACE CONTROL)
FL-124
(FUNCTION SWITCH)

CN-143 (CONNECTION), LM-64 (LOADING MOTOR) SCHEMATIC DIAGRAM

– Ref. No.: CN-143 board, LM-64 board; 1,000 series –

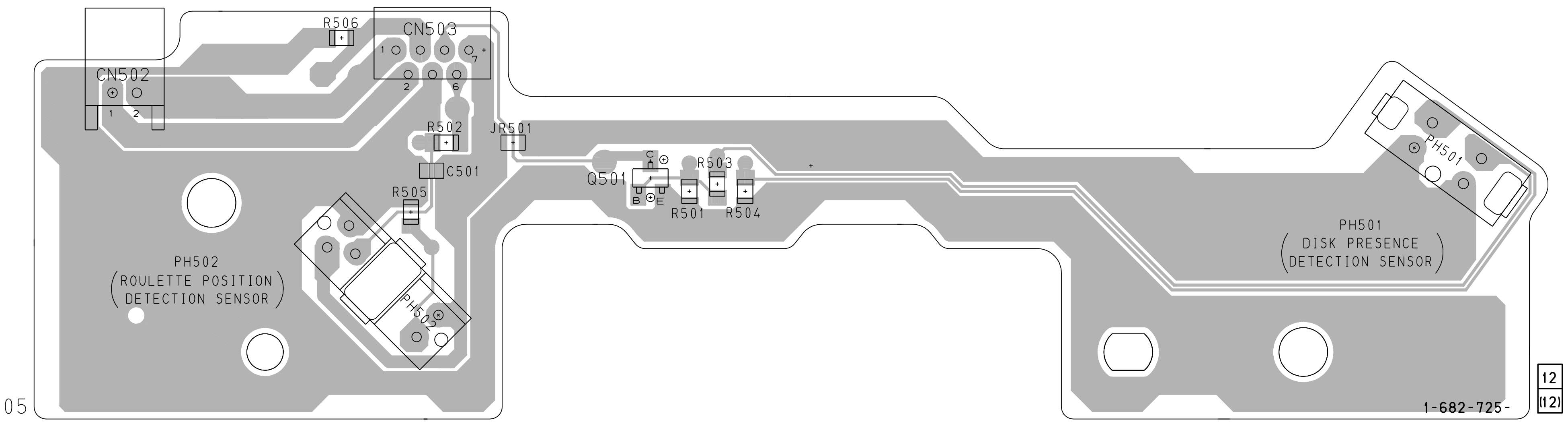

1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
CN-143 BOARD
NO MARK:DVD/CD PLAY
CN351 8P
GND 8
SCO 7
SOO 6
SIO 5
XIFCS 4
IFBSY 3
XFRRST 2
+3.3V-MNT 1
MB-101 BOARD (7/13) CN101 (SEE PAGE 4-24)
JL351
JL352
JL353
JL354
JL355
JL356
JL357
JL358
B+
ET351
FB357
FB358
FB359
FB360
JL369
JL370
JL371
JL372
JL373
JL374
JL375
JL376
JL377
JL378
JL379
JL380
JL381
JL382
R359 0
CN353 8P
1 GND
2 SCO
3 SOO
4 SIO
5 XIFCS
6 IFBSY
7 XFRRST
8 3.3V_MNT
IF-81 BOARD CN404 (SEE PAGE 4-49)
CN354 6P
1 LM+
2 LM-
3 S1(CKSW1)
4 S2(OCSW1)
5 GND
6 S3(OCSW2)
ROTARY ENCODER (LOADING)
LM-64 BOARD
B851
1 LM+
2 LM-
JL851
JL852
M851 (LOADING MOTOR)
M
C356 0.1u
C357 0.1u
C358 0.1u
IC351 BA6956AN
VREF
OUT2
RNF
OUT1
VIN
VCC
FIN
GND
RIN
1
2
3
4
5
6
7
8
9
3.1
0.2
0.2
11
0
0
IC351
TURNTABLE MOTOR DRIVE
R358 0
CN352 14P
OCSW1 14
CKSW1 13
GND 12
LDM- 11
LDM+ 10
N.C. 9
OCSW2 8
TSENS 7
TMP 6
DSENS 5
TMM 4
+5v 3
ML_GND 2
+11V 1
MB-101 BOARD (5/13) CN205 (SEE PAGE 4-19)
JL359
JL360
JL361
JL362
JL363
JL364
JL365
JL366
JL367
JL368
FB353
FB354
R352 100
FB355
FB356
FB351
FB352
R353 2200
R354 2200
R355 3300
C351 0.01u
C352 0.01u
C353 0.1u
C355 22u 25V
D351 UDZSTE-175.1B
R356 3300
Q351 2SA1037AK-T146-QR SWITCH
0
3.3
R357 100
L351 10uH
CN355 7P
JL383
JL384
JL385
JL386
JL387
JL388
7 TM-
6 TM+
5 N.C
4 GND
3 DSENS
2 TSENS
1 +5V
SE-123 BOARD CN503 (SEE PAGE 4-61)
05

SE-123 (SENSOR), TM-125 (TURNTABLE MOTOR) PRINTED WIRING BOARDS

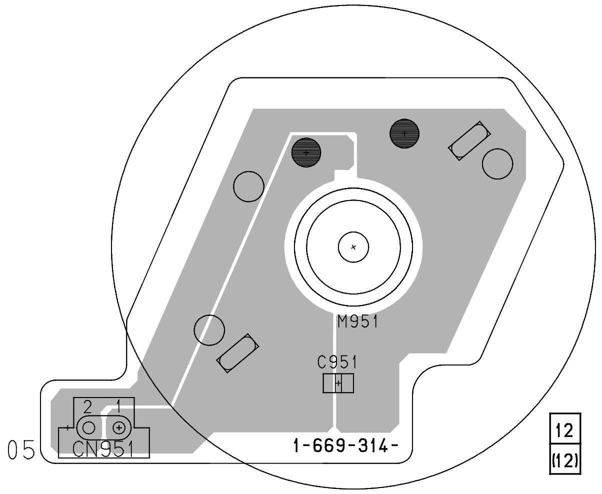
– Ref. No.: SE-123 board, TM-125 board; 1,000 series –

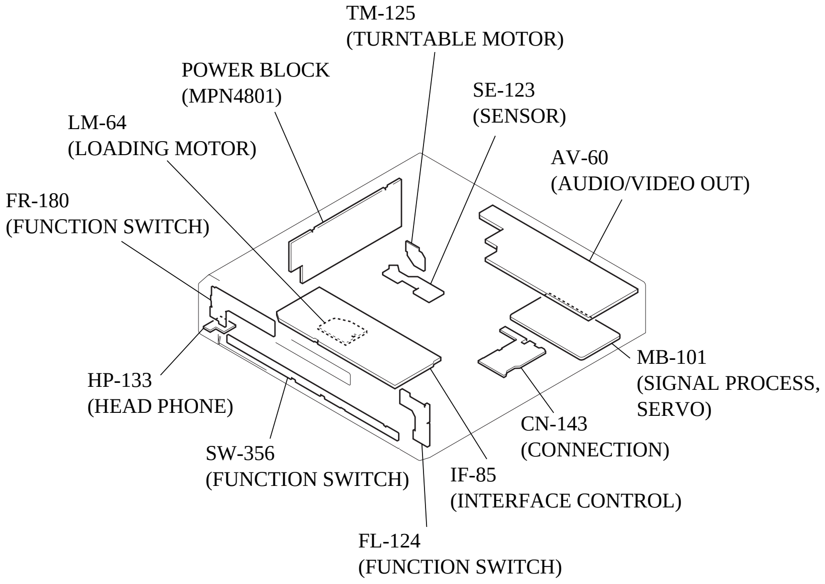
There are a few cases that the part isn't mounted in this model is printed on this diagram.

SE-123 BOARD

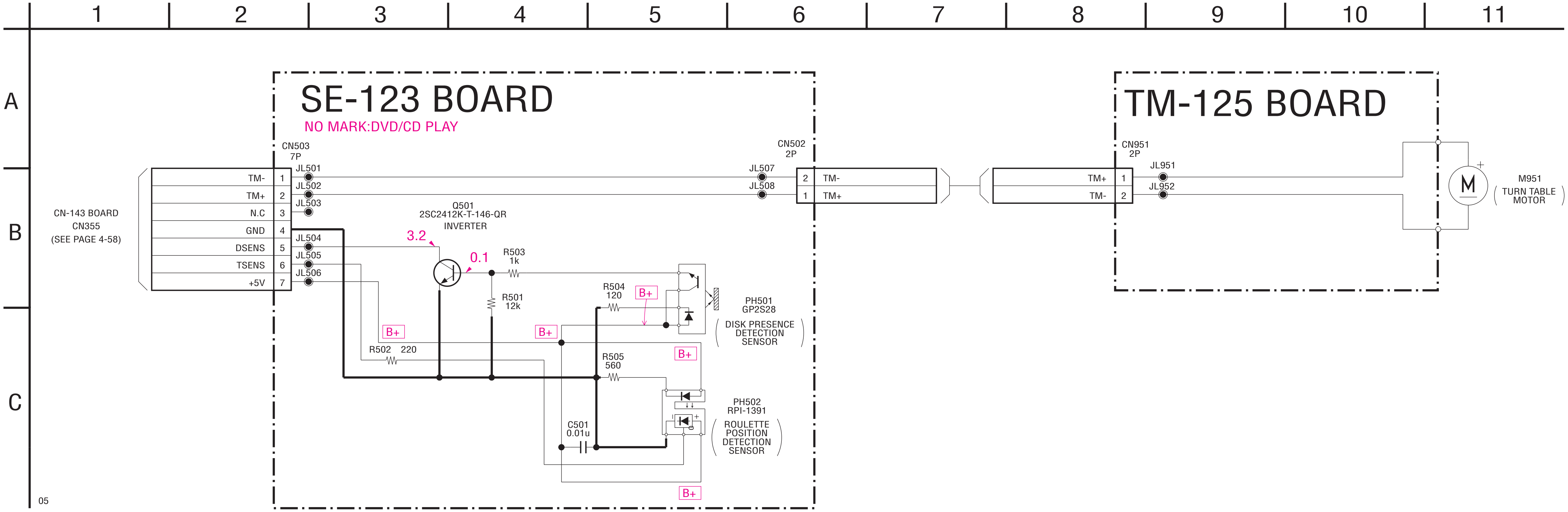

R506
CN503
1
2
6
7
CN502
1
2
R502
JR501
C501
R505
Q501
C
B
E
R503
R501
R504
PH502
(ROULETTE POSITION DETECTION SENSOR)
PH502
PH501
PH501
(DISK PRESENCE DETECTION SENSOR)
05
1-682-725-
12
(12)

TM-125 BOARD


M951
C951
2
1
CN951
05
1-669-314-
12
(12)


TM-125
(TURNTABLE MOTOR)
POWER BLOCK
(MPN4801)
SE-123
(SENSOR)
LM-64
(LOADING MOTOR)
AV-60
(AUDIO/VIDEO OUT)
FR-180
(FUNCTION SWITCH)
MB-101
(SIGNAL PROCESS,
SERVO)
HP-133
(HEAD PHONE)
CN-143
(CONNECTION)
SW-356
(FUNCTION SWITCH)
IF-85
(INTERFACE CONTROL)
FL-124
(FUNCTION SWITCH)

SE-123 (SENSOR), TM-125 (TURNTABLE MOTOR) SCHEMATIC DIAGRAM
– Ref. No.: SE-123 board, TM-125 board; 1,000 series –


1
2
3
4
5
6
7
8
9
10
11
A
B
C
SE-123 BOARD
NO MARK:DVD/CD PLAY
CN503
7P
JL501
JL502
JL503
JL504
JL505
JL506
TM-
TM+
N.C
GND
DSENS
TSENS
+5V
CN-143 BOARD
CN355
(SEE PAGE 4-58)
Q501
2SC2412K-T-146-QR
INVERTER
3.2
0.1
R503
1k
R501
12k
R504
120
B+
PH501
GP2S28
DISK PRESENCE
DETECTION
SENSOR
R502 220
R505
560
PH502
RPI-1391
ROULETTE
POSITION
DETECTION
SENSOR
C501
0.01u
CN502
2P
JL507
JL508
TM-
TM+
TM-125 BOARD
CN951
2P
JL951
JL952
M951
TURN TABLE
MOTOR
M
05

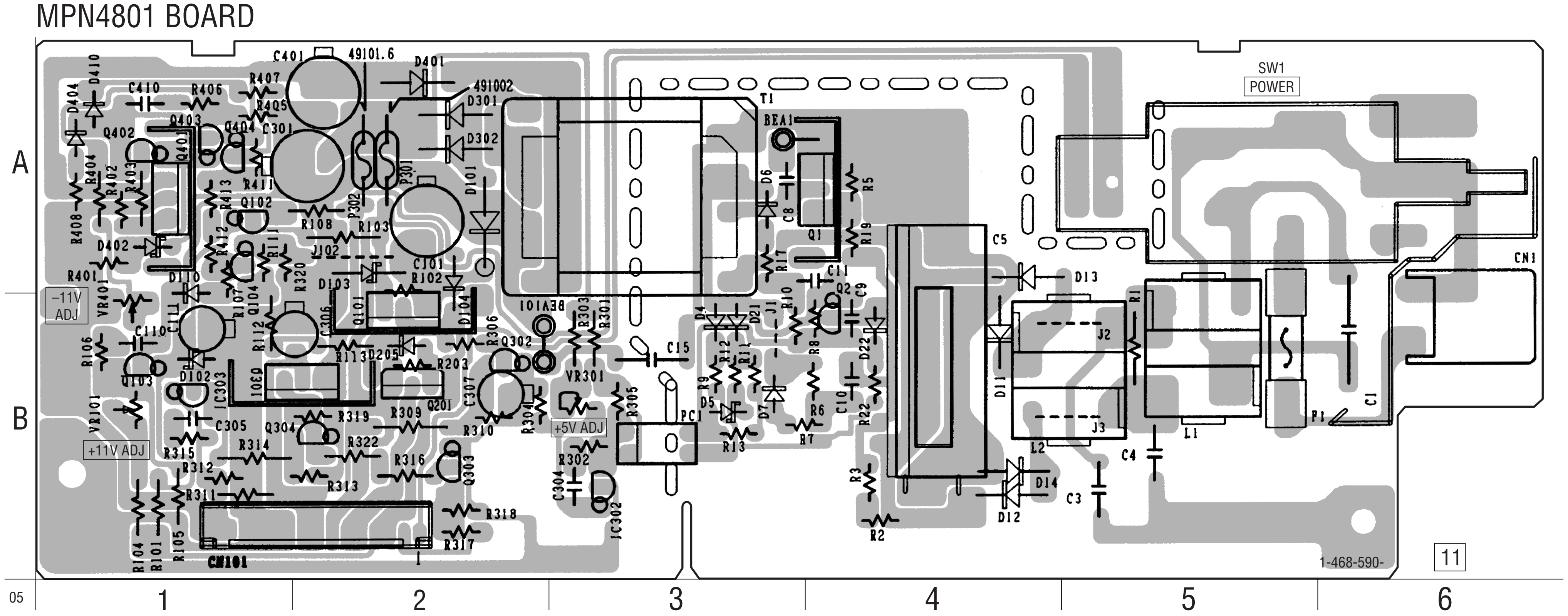
MPN4801 (SWITCHING REGULATOR) PRINTED WIRING BOARD

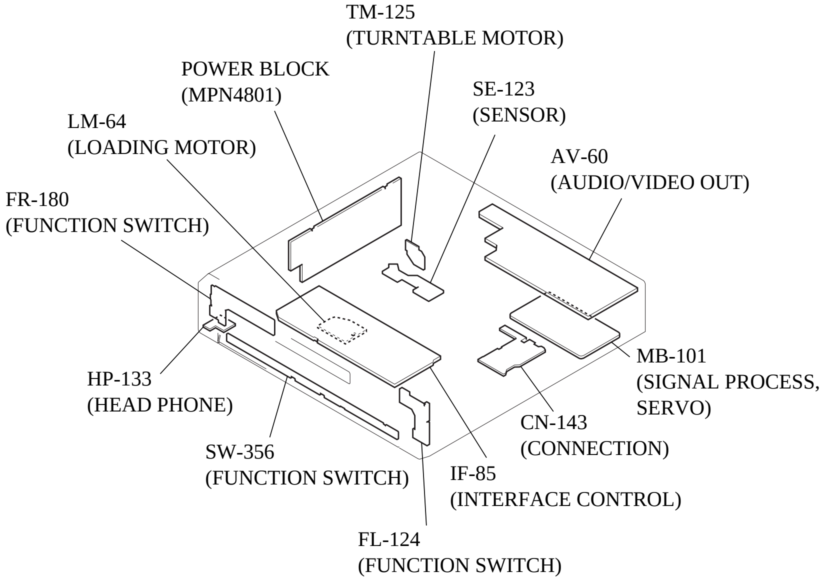
– Ref. No.: MPN4801 board; 4,000 series –

There are a few cases that the part isn't mounted in this model is printed on this diagram.

MPN4801BOARD

CN1	A-6
CN101	B-1
D4	B-3
D5	B-3
D6	A-3
D7	B-3
D11	B-4
D12	B-4
D13	A-4
D14	B-3
D21	B-3
D22	B-4
D101	A-2
D102	B-1
D103	B-2
D104	B-2
D110	B-1
D205	B-2
D301	A-2
D302	A-2
D401	A-2
D402	A-1
D404	A-1
D410	A-1
IC302	B-3
IC303	B-1
Q1	A-4
Q2	B-4
Q101	B-2
Q102	A-1
Q103	B-1
Q104	B-1
Q201	B-2
Q301	B-1
Q302	B-2
Q303	B-2
Q304	B-2
Q401	A-1
Q402	A-1
Q403	A-1

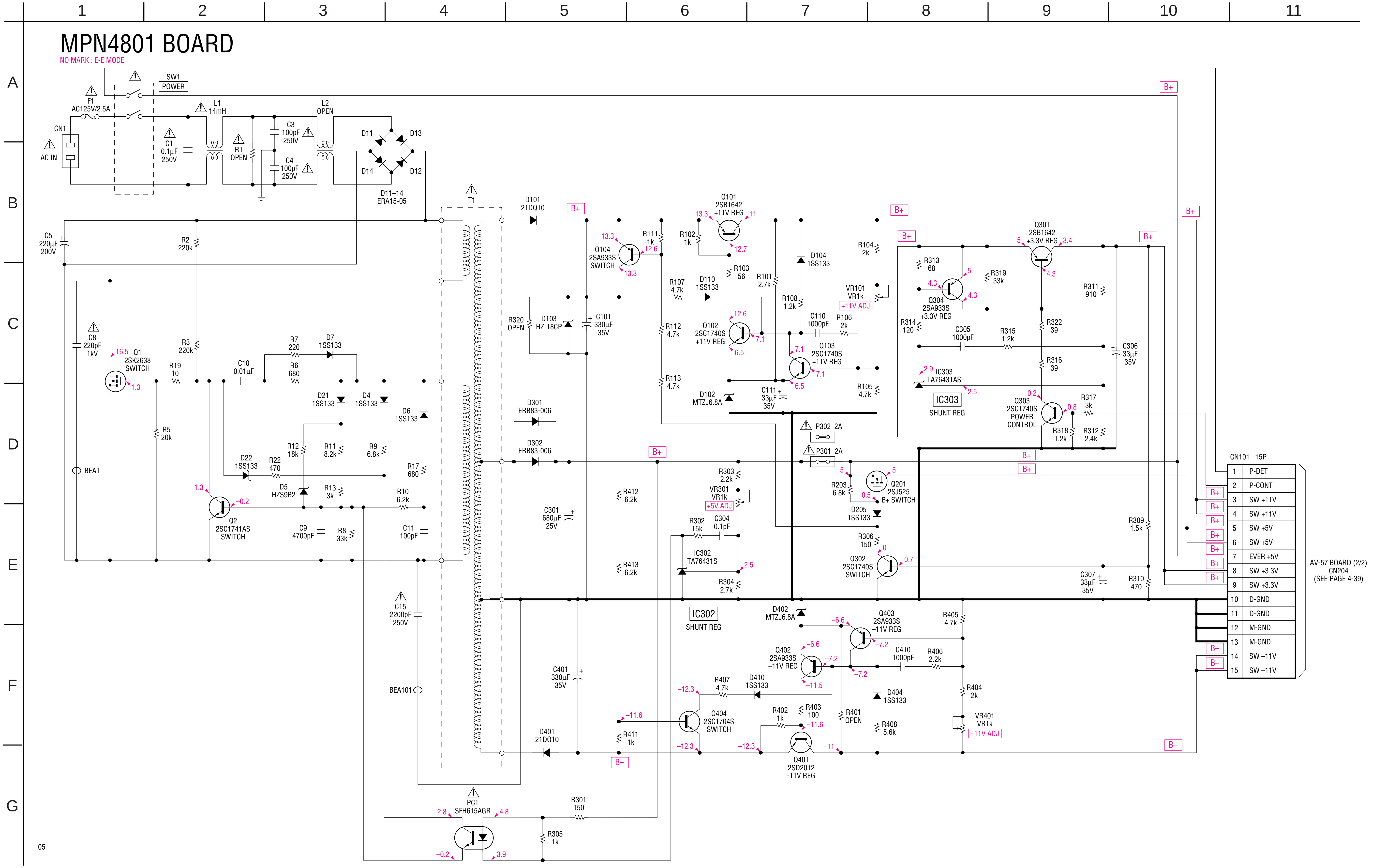

MPN4801 BOARD
A
B
1
2
3
4
5
6
05
−11V ADJ
+11V ADJ
+5V ADJ
SW1
POWER
CN1
CN101
T1
PC1
F1
C1
L1
L2
J2
J3
C3
C4
C5
D11
D12
D13
D14
C401
C410
R406
R407
R405
Q402
Q403
Q404
C301
D401
D301
D302
P301
P302
D101
Q401
Q102
R108
R103
C101
R102
D103
D104
D110
D102
Q101
Q103
Q104
C110
C111
IC303
C303
C305
Q304
R319
R309
R310
R314
R322
R316
R313
R312
R311
R315
R318
R317
R104
R101
R105
VR101
VR401
R401
D402
R408
R404
R402
R403
D404
D410
R413
R411
R412
R111
R107
R112
R320
C306
R113
D205
R203
Q201
C307
Q302
R306
Q303
R304
R303
R301
BEA101
BEA1
VR301
R305
R302
C304
IC302
C15
D4
D5
D6
D7
D21
D22
R9
R12
R11
R13
R10
R8
R6
R7
R17
R19
R5
C8
Q1
Q2
C11
C9
C10
R22
R3
R2
R1
J1
1-468-590-
11


TM-125
(TURNTABLE MOTOR)
POWER BLOCK
(MPN4801)
SE-123
(SENSOR)
LM-64
(LOADING MOTOR)
AV-60
(AUDIO/VIDEO OUT)
FR-180
(FUNCTION SWITCH)
MB-101
(SIGNAL PROCESS,
SERVO)
HP-133
(HEAD PHONE)
CN-143
(CONNECTION)
SW-356
(FUNCTION SWITCH)
IF-85
(INTERFACE CONTROL)
FL-124
(FUNCTION SWITCH)

MPN4801 (SWITCHING REGULATOR) SCHEMATIC DIAGRAM

– Ref. No.: MPN4801 board; 4,000 series –

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
MPN4801 BOARD
NO MARK : E-E MODE
SW1 POWER
F1 AC125V/2.5A
CN1
AC IN
L1 14mH
C1 0.1μF 250V
R1 OPEN
C3 100pF 250V
C4 100pF 250V
L2 OPEN
D11
D13
D14
D12
D11–14 ERA15-05
T1
D101 21DQ10
B+
C5 220μF 200V
R2 220k
R3 220k
C8 220pF 1kV
Q1 2SK2638 SWITCH
16.5
1.3
R19 10
C10 0.01μF
R7 220
D7 1SS133
R6 680
D21 1SS133
D4 1SS133
D6 1SS133
R5 20k
BEA1
D22 1SS133
R22 470
R12 18k
R11 8.2k
R9 6.8k
R17 680
D5 HZS9B2
R13 3k
R10 6.2k
Q2 2SC1741AS SWITCH
−0.2
C9 4700pF
R8 33k
C11 100pF
C15 2200pF 250V
BEA101
PC1 SFH615AGR
2.8
4.8
−0.2
3.9
R301 150
R305 1k
05
R320 OPEN
D103 HZ-18CP
C101 330μF 35V
D301 ERB83-006
D302 ERB83-006
C301 680μF 25V
C401 330μF 35V
D401 21DQ10
Q104 2SA933S SWITCH
13.3
12.6
R111 1k
Q101 2SB1642 +11V REG
11
12.7
R102 1k
R103 56
R101 2.7k
D104 1SS133
R104 2k
R107 4.7k
D110 1SS133
R108 1.2k
VR101 VR1k +11V ADJ
R112 4.7k
Q102 2SC1740S +11V REG
7.1
6.5
C110 1000pF
R106 2k
Q103 2SC1740S +11V REG
R113 4.7k
D102 MTZJ6.8A
C111 33μF 35V
R105 4.7k
R412 6.2k
R413 6.2k
R411 1k
−11.6
B–
R303 2.2k
VR301 VR1k +5V ADJ
R302 15k
C304 0.1pF
IC302 TA76431S
2.5
R304 2.7k
IC302 SHUNT REG
P302 2A
P301 2A
R203 6.8k
Q201 2SJ525 B+ SWITCH
D205 1SS133
R306 150
Q302 2SC1740S SWITCH
0.7
Q301 2SB1642 +3.3V REG
3.4
R313 68
R319 33k
Q304 2SA933S +3.3V REG
R314 120
C305 1000pF
R315 1.2k
R322 39
R311 910
R316 39
C306 33μF 35V
IC303 TA76431AS
2.9
IC303 SHUNT REG
Q303 2SC1740S POWER CONTROL
R317 3k
R318 1.2k
R312 2.4k
R309 1.5k
C307 33μF 35V
R310 470
D402 MTZJ6.8A
Q403 2SA933S −11V REG
−6.6
−7.2
R405 4.7k
Q402 2SA933S −11V REG
−11.5
C410 1000pF
R406 2.2k
R407 4.7k
D410 1SS133
−12.3
Q404 2SC1704S SWITCH
R402 1k
R403 100
R401 OPEN
D404 1SS133
R408 5.6k
R404 2k
VR401 VR1k −11V ADJ
Q401 2SD2012 -11V REG
−11
CN101 15P
1 P-DET
2 P-CONT
3 SW +11V
4 SW +11V
5 SW +5V
6 SW +5V
7 EVER +5V
8 SW +3.3V
9 SW +3.3V
10 D-GND
11 D-GND
12 M-GND
13 M-GND
14 SW −11V
15 SW −11V
AV-57 BOARD (2/2) CN204 (SEE PAGE 4-39)

SECTION 5

IC PIN FUNCTION DESCRIPTION

5-1. SYSTEM CONTROL PIN FUNCTION (MB-101 BOARD IC104)

Pin No.	Pin name	I/O	Function
1-5	HA17-HA21	O	Address bus A17-A21
6	HA22	-	Not used
7	WP	O	Write control signal output to EEPROM
8	TRM–/XKRCS	-	– Tray motor
9	AVCC	-	Power supply
10	AVRH	-	Reference power supply (+3.3 V)
11	AVSS	-	Ground
12	AN0	I	Set of mode 0
13	AN1	I	Set of mode 1
14	AN2	I	Set of mode 2
15	AN3	I	Set of mode 3
16	INT0	I	Input of interrupt from AV DEC
17	INT1	I	Input of interrupt from ARP
18	INT2	I	Input of interrupt from servo DSP
19	INT3	-	Not used
20	INT4	I	Input of interrupt from IF CON
21	INT5	I	Position detection of Tray turning part
22	INT6	I	Position detection of Tray turning part
23	INT7	-	Not used
24	VCC	-	Power supply
25	SI0	I	Serial data input from IF CON
26	SO0	O	Serial data output to IF CON
27	SC0	O	Serial clock output to IF CON
28	SI1	I	Serial bus 1 (for data input)
29	SO1	O	Serial bus 1 (for data output)
30	SC1	O	Serial clock output
31	SI2	I	Serial bus 2 (for data input)
32	SO2	O	Serial bus 2 (for data output)
33	DSENS	-	Disk detection
34	VSS	-	Ground
35	XRST	O	System reset signal output
36	XARPRST	O	Reset signal output for ARP
37	RGBSEL	O	RGB signal select signal output/Mic mute signal output
38	SDA	I/O	I2C bus seria data input/output
39	SCL	O	I2C bus serial clock output
40	TRM+/XKRRST	-	+ Tray motor
41	EUROV	O	EURO V/Y select signal output/Mute signal output to video buffer
42	DISCEXT	O	Line input select signal output (DISC: “H”, EXT: “ L”)
43	MD0	I	Input of mode select 0 (fixed at “ H”)
44	MD1	I	Input of mode select 1 (fixed at “ L”)
45	MD2	I	Input of mode select 2 (fixed at “ L”)
46	DREQ0	I	Input of DMA-REQ 0 from AV DEC
47	DACK0	O	Output of DMA-ACK 0 to AV DEC
48	XDRVMUTE	O	Drive mute signal output
49	DREQ1	I	Input of DMA-REQ 1 from AV DEC
50	DACK1	O	Output of DMA-ACK 1 to AV DEC
51	XIFCS	O	Chip select signal to IF CON
52	VSS	-	Ground
53	X1	O	Clock output (16.5 MHz)
54	X0	I	Clock input (16.5 MHz)
55	VCC	-	Power supply
56	CKSW1	I	Chuck sensor input to Rotary encoder
57	OCSW1	I	Chuck sensor input to Rotary encoder
58	CS0X	O	External ROM chip select signal output
59	CS1X	-	Not used
60	CS2X	O	Chip select signal output (for AV DEC)
61	CS3X	O	Chip select signal output (for AV DEC)
62	CS4X	O	Chip select signal output (for ARP)
63	CS5X	O	Chip select signal output (for servo DSP)
64	C	-	Capacitor (0.1uF) connect between ground
65	CS6X	-	Not used
66	CS7X	-	Not used
67	XWAIT	I	Wait signal input
68	BGRNTX	-	Test terminal (fixed at “H”)
69	BRQ	-	Test terminal
70	XRD	O	Read enable signal output

Pin No.	Pin name	I/O	Function
71	XWRH	O	High byte write enable signal output (16 bit and 8 bit)
72	XWRL	-	Not used
73	NMIX	-	Not used (fixed at “H”)
74	HSTX	-	Not used (fixed at “H”)
75	VSS	-	Ground
76	XFRRST	I	Reset signal input from IF CON
77	CPUCK	O	CPU clock signal output
78	OCSW2	I	Chuck sensor input to Rotary encoder
79	XDACS	O	Chip select signal output to DAC (2ch, 6ch)
80	VESCS/X39CS	O	Chip select signal output to DSP
81	48/44.1K	O	PLL FS control signal output
82	WIDE	O	WIDE select signal output
83	MAMUTE	O	Audio mute signal output
84	XLDON	O	LD control signal output
85-92	HD0-HD7	I/O	Data bus D0-D7 (16 bit only)
93-100	HD8-HD15	I/O	Data bus D8-D15 (16 bit) , D0-D7 (8 bit)
101	VSS	-	Ground
102-109	HA0-HA7	O	Address bus A00-A07
110	VCC	-	Power supply
111-118	HA8-HA15	O	Address bus A08-A15
119	VSS	-	Ground
120	HA16	O	Address bus A16

SECTION 6
TEST MODE

6-1. GENERAL DESCRIPTION

The Test Mode allows you to make diagnosis and adjustment easily using the remote commander and monitor TV. The instructions, diagnostic results, etc. are given on the on-screen display (OSD).

6-2. STARTING TEST MODE

Press the TITLE, CLEAR, POWER keys on the remote commander in this order with the power of main unit in OFF status, and the Test Mode starts, then “DIAG START” will be displayed on the fluorescent display tube and the menu shown below will be displayed on the TV screen. At the bottom of menu screen, the model name and revision number are displayed. Last Off at the lower right of screen indicates the information code concerning the last power off.
To execute each function, select the desired menu and press its number on the remote commander.
To exit from the Test Mode, press the POWER key.

```
         Test Mode Menu

0. Syscon Diagnosis
1. Drive Auto Adjustment
2. Drive Manual Operation
3. Mecha Aging
4. Emergency History
5. Version Information
6. Video Level Adjustment
                Exit: POWER Key
_
Model  : DPX-145xxx
Revision : 1.xxxx  Last Off: xx
```

Power Off Information Code List

00 : Primary Power Off
01 : Power Off Request from SYSTEM CONTROL
02 : Power Off by Emergency Power Off Command from SYSTEM CONTROL
(if information is sent from SYSTEM CONTROL)
03 : IF CON Judged that SYSTEM CONTROL is Faulty
04 : Power Off from Diagnosis Mode of IF CON
05 : Forced Power Off by the User
06 : Power Off by Power Supply Voltage Monitor

6-3. SYSCON DIAGNOSIS

The same contents as board detail check by serial interface can be checked from the remote commander.
On the Test Mode Menu screen, press 0 key on the remote commander, and the following check menu will be displayed.

```
    ### Syscon Diagnosis ###
           Check Menu
0. Quit
1. All
2. Version
3. Peripheral
4. Servo
5. Supply
6. AV Decoder
7. Video
8. Audio
_
```

0. Quit

Quit the Syscon Diagnosis and return to the Test Mode Menu.

1. All

All items continuous check
This menu checks all diagnostic items continuously. Normally, all items are checked successively one after another automatically unless an error is found, but at a certain item that requires judgment through a visual check to the result, the following screen is displayed for the key entry.

```
    ### Syscon Diagnosis ###

         Diag All Check
         No. 2 Version

 2-3. ROM Check Sum
Check Sum = xxxx


Press NEXT Key to Continue
Press PREV Key to Repeat
_
```

For the ROM Check, the check sum calculated by the Syscon is output, and therefore you must compare it with the specified value for confirmation.
Following the message, press NEXT key to go to the next item, or PREV key to repeat the same check again. To quit the diagnosis and return to the Check Menu screen, press STOP or ENTER key. If an error occurred, the diagnosis is suspended and the error code is displayed as shown below.

```
    ### Syscon Diagnosis ###



 3-3. EEPROM Check
Error 03: EEPROM Write/Reed N
Address    : 00000001
Write Data : 2492
Read Data  : 2490
Press NEXT Key to Continue
Press PREV Key to Repeat
_
```

Press STOP key to quit the diagnosis, or PREV key to repeat the same item where an error occurred, or NEXT key to continue the check from the item next to faulty item.

Submenu

Selecting 2 and subsequent items calls the submenu screen of each item.
For example, if “5. Supply” is selected, the following submenu will be displayed.

```
    ### Syscon Diagnosis ###
           Check Menu
          No. 5 Supply
0. Quit
1. All
2. ARP Register Check
3. ARP to RAM Data Bus
4. ARP to RAM Address Bus
5. ARP RAM Check
_
```

0. Quit

Quit the submenu and return to the main menu.

1. All

All submenu items continuous check.
This menu checks 2 and subsequent items successively. At the item where visual check is required for judgment or an error occurred, the checking is suspended and the message is output for key entry.
Normally, all items are checked successively one after another automatically unless an error is found.
Selecting 2 and subsequent items executes respective menus and outputs the results.
For the contents of each submenu, see “General Description of Checking Method” and “Check Items List”.

General Description of Checking Method

2. Version

(2-2) Revision
ROM revision number is displayed.
Error: Not detected.
The revision number defined in the source file of ROM (IC106 or 107) is displayed with four digits.

(2-3) ROM Check Sum
Check sum is calculated.
Error: Not detected.
8-bit data are added up to the ROM (IC106 or 107) address 0x000F0000 to 0x002EFFFF, and the result is displayed with 4-digit hexadecimal number. Error is not detected. Compare the result with the specified value.

(2-4) Model Type
Model code is displayed.
Error: Not detected.
The model code read from the EEPROM is displayed with 2-digit hexadecimal number.

	Model Type	
US, Canadian	3	0

(2-5) Region
Region code is displayed.
Error: Not detected.
The region code determined from the model code is displayed.

3. Peripheral

(3-2) EEPROM Check
Data write → read, and accord check
Error 03: EEPROM write/read discord
0x9249, 0x2942 and 0x4294 are written to the address 0x00 to 0xFF of the EEPROM and then read for checking. Before writing, the data are saved, then after checking, they are written to restore the contents of EEPROM.

(3-3) Gate Array Check
Data write → read, and accord check
Error 02: Gate array write/read discord
Data of 0x00 to 0xFF is written sequentially to the address 0xF and then read for checking.

(3-4) SACD Check
RAM Check (IC806)
Data write → read, and accord check
DSD_DSP Check (IC806)
Mix mode Register read, write check.

4. Servo

(4-2) Servo DSP Check
Data write → read, and accord check
Error 12: Read data discord
0x9249, 0x2942 and 0x4294 are written to the RAM address 0x602 of the Servo DSP and then read for checking. Also, OPT type "1 LASER" or "2 LASER" is displayed.

(4-3) DSP Driver Test
Test signal data → DSP Driver
Error: Not detected.

Caution: Do not perform this checking with the mechanical deck connected.
The maximum voltage is applied to the Servo Driver IC (IC401). If the mechanical deck is connected, it will be destroyed immediately. Following the output message, disconnect the mechanical deck, then enter the specified 4- or 5-digit value from the commander, and press the ENTER key. The test is conducted only if the entered value accords. To exit the test, check the output level, then press NEXT key.
This check is not conducted, but skipped in "All" menu item.

Supplement: How to disconnect mechanical deck
Disconnect flexible flat cables connected to the CN203 and CN204 of MB-101 board. Also, disconnect flat cable from the CN201.

5. Supply

(5-2) ARP Register Check
Data write → read, and accord check
Error 08: ARP register write, and read data discord
Data 0x00 to 0xFF is written sequentially to the ARP TMAX register (address 0xC6) and then read for checking.

(5-3) ARP to RAM Data Bus
Data write → read, and accord check
Error 09: ARP ←→ RAM data bus error
Data 0x0001 to 0x8000 where one bit each is set to 1 are written to the address 0 of RAM (IC303) connected to the ARP (IC302) through the bus, then they are read and checked. In case of discord, written bit pattern and read data are displayed. If data where multiple bits are 1 are read, the bits concerned may touch each other. Further, if data where certain bit is always 1 or 0 regardless of written data, the line could be disconnected or shorted.

(5-4) ARP to RAM Address Bus
Data write → other address read discord check
Error 10: ARP ←→ RAM address bus error
Caution: Address and data display in case of an error is different from the display of other diagnosis (described later).
Before starting the test, all addresses of RAM (IC303) are cleared to 0x0000.
First, 0xA55A is written to the address 0x00000, and the address data are read and checked from addresses 0x00001 to 0x80000 while shifting 1 bit each. Next, the data at that address is cleared, and it is written to the address 0x00001, and read and checked in the same manner. This check is repeated up to the address 0x80000 while shifting the address data by 1 bit each.
If data other than 0 is read at the addresses except written address, an error is given because all addresses were already cleared to 0. In this check, the error display pattern is different from that of other diagnosis; read data, written address, and read address are displayed in this order. However, the message uses same template, and accordingly exchange Address and Data when reading. The following display, for example,

```
    ### Syscon Diagnosis ###




 5-4. ARP to RAM Address Bus
Error 10: ARP - RAM Address B
Address    : 0000A55A
Write Data : 00000000
Read Data  : 00080000
Press NEXT Key to Continue
Press PREV Key to Repeat
_
```

shows the data 0xA55A was read from address 0x00080000 though it was written to the address 0x00000000. This implies that these addresses are in the form of shadow. Also, if the read data is not 0xA55A, another error will be present.

(5-5) ARP RAM Check
Data write → read, and accord check
Error 11: ARP RAM read data discord
The program code data stored in ROM are copied to all areas of RAM (IC303) connected to the ARP (IC302) through the bus, then they are read and checked if they accord. If the detail check was selected initially, the data are written to all areas and read, then the same test is conducted once again with the data where all bits are inverted between 1 and 0. If discord is detected, faulty address, written data, and read data are displayed following the error code 11, and the test is suspended.

6. AV Decoder

(6-2) 1930 RAM
Data write → read, and accord check
Error 13: AVD RAM read data discord
The program code data stored in ROM (IC106 or 107) are copied to all areas of RAM (IC504, IC505) connected to the AVD (IC503) through the bus, then they are read and checked if they accord. Further, the same test is conducted once again with the data where all bits are inverted between 1 and 0. If discord is detected, faulty address, written data, and read data are displayed following the error code 13, and the test is suspended.
During the test, OSD display becomes blank as the OSD area is also checked.

(6-3) 1930 SP
ROM → AVD RAM → Video OUT
Error: Not detected.
The data including sub picture streams in ROM (IC106 or 107) are transferred to the RAM (IC507) in AVD (IC502), and output as video signals from the AVD (IC502).
Though OSD display becomes blank, the output of video signals continues until the key is pressed.
They are output from all video terminals (Composite, Y/C, Component) .

7. Video

(7-2) Color Bar
AVD color bar command write → Video OUT
Error: Not detected.
The command is transferred to the AVD, and the color bar signals are output from video terminals.
They are output from all video terminals (Composite, Y/C, Component) except EURO AV terminal.

(7-3) Composite Out (Same as 7-2)

(7-4) Y/C Out (Same as 7-2)

(7-6) Component Out (Same as 7-2)

8. Audio

(8-2) ARP → 1930
Error 14 : ARP → 1930 video NG
15 : ARP → 1930 audio NG

(8-3) Test Tone
A pink noise signal is output from the AVD (IC502) through optical coaxial digital terminal and analog audio terminal.
Error: Not detected.
After turning on all outputs, each time the NEXT key is pressed, the output channel is switched for individual channel checking.
Left + Right → Left → Right are checked in this order.
ALL channels → 2ch Left → 2ch Right → Front Left → Front Right → Rear Left → Rear Right → Center → Sub woofer

Check Items List

2) Version
(2-2) Revision
(2-3) ROM Check Sum
(2-4) Model Type
(2-5) Region

3) Peripheral
(3-2) EEPROM Check
(3-3) Gate Array Check
(3-4) SACD Check

4) Servo
(4-2) Servo DSP Check
(4-3) DSP Driver Test

5) Supply
(5-2) ARP Register Check
(5-3) ARP to RAM Data Bus
(5-4) ARP to RAM Address Bus
(5-5) ARP RAM Check

6) AV Decoder
(6-2) 1930 RAM
(6-3) 1930 SP

7) Video
(7-2) Color Bar
(7-3) Composite Out (Same as 7-2)
(7-4) Y/C Out (Same as 7-2)
(7-6) Component Out (Same as 7-2)

8) Audio
(8-2) ARP → 1930
(8-3) Test Tone

Error Codes List

00: Error not detected
01: RAM write/read data discord
02: Gate array NG
03: EEPROM NG
04: Flash memory clear error
05: Flash memory write error
06: Flash memory read data discord
07: 2725 read data discord
08: ARP register read data discord
09: ARP ←→ RAM data bus error
10: ARP ←→ RAM address bus error
11: ARP RAM read data discord
12: Servo DSP NG
13: 1930 SDRAM NG
14: ARP → 1930 video NG
15: ARP → 1930 audio NG
16: 1910 UCODE download NG
17: System call error (function not supported)
18: System call error (parameter error)
19: System call error (illegal ID number)
20: System call error (time out)
21: NAND Flash faulty blocks exceed 10
90: Error occurred
91: User verification NG
92: Diagnosis cancelled

6-4. DRIVE AUTO ADJUSTMENT

On the Test Mode Menu screen, press 1 key on the remote commander, and the drive auto adjustment menu will be displayed.

```
   ## Drive Auto Adjustment ##

         Adjustment Menu

0. ALL
1. DVD-SL
2. CD
3. DVD-DL
4. LCD



                    Exit: RETURN
```

Normally, 0 is selected to adjust DVD (single layer), CD, DVD (dual layer), and LCD (SACD) in this order. But, individual items can be adjusted for the case where adjustment is suspended due to an error. In this mode, the adjustment can be made easily through the operation following the message displayed on the screen. Which disc is currently adjusted is displayed on the fluorescent display tube.
The disc used for adjustment must be the one specified for adjustment.

0. ALL

You will be asked if EEPROM data are initialized or not, and for this prompt, select 0 and press the ENTER key. First , the servo setting data in EEPROM, Emergency History and Hour Meter are cleared to initialize. Then, the disc tray will open. Place three kinds of discs on the turntable in advance. Place the DVD-SL disc on the turntable number 1, and press the ENTER key. The turntable turns and the number 2 will come to the front, and then place CD disc on the number 2. Similarly, place the DVD-DL disc on the number 3, and press the ENTER key. The adjustment will then be executed in order. If an error is detected, retry adjustment from the beginning. To quit the adjustment in the midway, press the STOP button. In adjusting each disc, the mirror time is measured to check the disk type. In the auto adjustment, whether the disc type is correct is not checked unlike conventional models, and accordingly, take care not to insert a different type of disc.

1. DVD-SL (single layer)

Select 1, place DVD single layer disc on the turntable number 1 and press ENTER key, and the adjustment will be made through the following steps, then adjusted values will be written to the EEPROM.

DVD Single Layer Disc Adjustment Steps

1. SLED TILT Reset
2. Disc Check Memory SL
3. Set Disc Type SL
4. Spdl Start
5. Wait 1 sec
6. LD ON
7. Focus Error Check
8. Focus ON 0
9. Auto Track Offset Adjust L0
10. Trv Level Check
11. Tracking ON
12. Wait 100 msec
13. CLVA ON
14. Wait 500 msec
15. Sled ON
16. Auto Loop Filter Offset Adjust
17. Auto Focus Gain Adjust L0
18. Auto Focus Balance Adjust L0
19. EQ Boost Adjust
20. Auto Loop Filter Offset Adjust
21. RF Level Measure
22. Jitter Disp ON
23. Jitter Memory
24. Jitter Disp OFF
25. Eep Copy Loop Filter Offset
26. All Servo Stop

2. CD

Select 2, place CD disc on the turntable number 2 and press ENTER key, and the adjustment will be made through the following steps, then adjusted values will be written to the EEPROM.

CD Adjustment Steps

1. Sled Tilt Reset
2. Disc Check Memory CD
3. Set Disc Type CD
4. Spdl Start
5. Wait 1 sec
6. LD ON
7. Focus Error Check
8. Fcs ON 1
9. Auto Track Offset Adjust L0
10. Trv Level Check
11. Tracking ON
12. Wait 100 msec
13. CLVA ON
14. Wait 500 msec
15. Sled ON
16. Auto Loop Filter Offset Adjust
17. Auto Focus Gain Adjust L0
18. Auto Focus Balance Adjust L0
19. Eq Boost Adjust
20. Auto Loop Filter Offset Adjust
21. Auto Track Gain Adjust
22. RF Level Measure
23. Jitter Disp ON
24. Jitter Memory
25. Jitter Disp OFF
26. All Servo Stop

3. DVD-DL (dual layer)

Select 3, place DVD dual layer disc on the turntable number 3 and press ENTER key, and the adjustment will be made through the following steps, then adjusted values will be written to the EEPROM.

DVD Dual Layer Disc Adjustment Steps

1. Sled Tilt Reset
2. Disc Check Memory DL
3. Set Disc Type DL

Layer 1 Adjust

4. Spdl Start (Wait 1 sec)
5. LD ON
6. Fcs ON 1
7. Auto Track Offset Adjust L1
8. Tracking ON
9. Wait 100 msec
10. Clva ON (Wait 500 msec)
11. Sled ON
12. Auto Focus Gain Adjust L1
13. Auto Focus Balance Adjust L1
14. Eq Boost Adjust L1
15. Auto Track Gain Adjust L1
16. Jitter Disp ON
17. Jitter Memory
18. Jitter Disp Off

Layer 0 Adjust

19. Focus Jump (L1 → L0)
20. Auto Track Offset Adjust L0
21. Tracking ON (Wait 100 msec)
22. Clva ON (Wait 500 msec)
23. Sled ON
24. Auto Focus Gain Adjust L0
25. Auto Focus Balance Adjust L0
26. Eq Boost Adjust L0
27. Auto Track Gain Adjust L0
28. Jitter Disp ON
29. Jitter Memory
30. Jitter Disp OFF
31. All Servo Stop

4. LCD (SACD)

This model does not adjust it because the adjusted data of CD are reflected.

6-5. DRIVE MANUAL OPERATION

On the Test Mode Menu screen, select 2, and the manual operation menu will be displayed. For the manual operation, each servo on/off control and adjustment can be executed manually.

```
   ## Drive Manual Operation ##

          Operation Menu
1. Disc type
2. Servo Control
3. Track/Layer Jump
4. Manual Adjustment
5. Auto Adjustment
6. Memory Check
7. 5CHG Mecha Control
0. Disc Check Memory

                 Exit: RETURN
```

In using the manual operation menu, take care of the following points. These commands do not provide protection, thus requiring correct operation. The sector address or time code field is displayed when a disc is loaded.

1. Set correctly the disc type to be used on the Disc Type screen.
   The disc type must be set after a disc was loaded.
   The set disc type is cleared when the tray is opened.
2. After power ON, if the Drive Manual Operation was selected, first perform "Reset SLED TILT" by opening 1. Disc Type screen.
3. In case of an alarm, immediately press the STOP button to stop the servo operation, and turn the power OFF.

Basic operation (controllable from front panel or remote commander)

POWER	Power OFF
STOP	Servo stop
OPEN/CLOSE	Stop+Eject/Loading
RETURN	Return to Operation Menu or Test Mode Menu
NEXT, PREV	Transition between sub modes of menu
1 to 9, 0	Selection of menu items
Cursor UP/DOWN	Increase/Decrease in manually adjusted value
DISC SELECT 1 to 5	Selection of applicable number disc
DISC SKIP	Go to the next disc
EXCHANGE	Open the disc tray while playing a disc

0. Disc Check Memory

```
            Disc Check



1. SL Disc Check
2. CD Disc Check
3. DL Disc Check




0. Reset SLED TILT
```

On this screen, the mirror time is measured and written to the EEPROM to check the disc type. First, set a DVD SL disc and press 1, then set a CD disc and press 2, and finally set a DVD DL disc and press 3. The measured mirror time is displayed respectively.

The adjustment must be executed more than once after default data were written.

Reference value for DVD is from 10 to 20, and for CD, from 28 to 4F. Check that the value of CD is larger than that of DVD. When those values are beyond a range perform this adjustment again.

From this screen, you can go to another mode by pressing NEXT or PREV key, but you cannot enter this mode from another mode. You can enter this mode from the Operation Menu screen only.

1. Disc Type

```
             Disc Type
1. Disc Type Auto Check
2. DVD SL   12 cm
3. DVD DL   12 cm
4. CD       12cm
5. LCD      12 cm
6. DVD SL   8 cm
7. DVD DL   8 cm
8. CD       8 cm
9. LCD      8 cm
0. Reset SLED TILT
                        EMG. 00
```

On this screen, select the disc type. To select the disc type, press the number of the loaded disc. The selected disc type is displayed at the bottom. Selecting 1 automatically selects and displays the disc type. In case of wrong display, retry "Disc Check Memory". Also, opening the tray causes the set disc type to be cleared. In this case, set the disc type again after loading.

In performing manual operation, the disc type must be set.

Once the disc type has been selected, the sector address or time code display field will appear as shown below. These values are displayed when PLL is locked.

```
             Disc Type
1. Disc Type Auto Check
2. DVD SL   12 cm
3. DVD DL   12 cm
4. CD       12cm
5. LCD      12 cm
6. DVD SL   8 cm
7. DVD DL   8 cm
8. CD       8 cm
9. LCD      8 cm
0. Reset SLED TILT
        SA.------ SI.-- EMG. 00
DVD SL 12 cm
```

Display when DVD SL 12cm disc was selected

```
            Disc Type
1. Disc Type Auto Check
2. DVD SL   12 cm
3. DVD DL   12 cm
4. CD       12cm
5. LCD      12 cm
6. DVD SL   8 cm
7. DVD DL   8 cm
8. CD       8 cm
9. LCD      8 cm
0. Reset SLED TILT
         TC.---:---:--- EMG. 00
CD   12 cm
```

Display when CD 12cm disc was selected

0 Reset SLED TILT	Reset the Sled and Tilt to initial position.
1 Disc Type Check	Judge automatically the loaded disc. As the judged result is displayed at the bottom of screen, make sure that it is correct. If Disc Check Memory menu has not been executed after EEPROM default setting, the disc type cannot be judged. In this case, return to the initial menu and make a check for three types of discs (SL, DL, CD).
2 to 9	Select the loaded disc. The adjusted value is written to the address of selected disc. No further entry is necessary if 1 was selected.

2. Servo Control

```
          Servo Control
1. LD        Off R. Sled FWD
2. SP        Off L. Sled REV
3. Focus     Off
4. TRK.      Off
5. Sled      Off
6. CLVA      Off
7. FCS. Srch Off


0. Reset SLED TILT
        SA.------ SI.-- EMG. 00
DVD SL 12 cm
```

On this screen, the servo on/off control necessary for replay is executed. Normally, turn on each servo from 1 sequentially and when CLVA is turned on, the usual trace mode becomes active. In the trace mode, DVD sector address or CD time code is displayed. This is not displayed where the spindle is not locked.
The spindle could run overriding the control if the spindle system is faulty or RF is not present. In such a case, do not operate CLVA.

0 Reset SLED TILT	Reset the Sled and Tilt to initial position.
1 LD	Turn ON/OFF the laser.
2 SP	Turn ON/OFF the spindle.
3 Focus	Search the focus and turn on the focus.
4 TRK	Turn ON/OFF the tracking servo.
5 Sled	Turn ON/OFF the sled servo.
6 CLVA	Turn ON/OFF normal servo of spindle servo.
7 FCS. Srch	Apply same voltage as that of focus search to the focus drive to check the focus drive system.
→ Sled FWD	Move the sled outward. Perform this operation with the tracking servo turned off.
← Sled REV	Move the sled inward. Perform this operation with the tracking servo turned off.

3. Track/Layer Jump

```
      Tracking/Layer Jump
1. 1Tj FWD    R. Fj (L1 → L0)
2. 1Tj REV    L. Fj (L0 → L1)
3. 2Tj FWD    U. Lj (L1 → L0)
4. 2Tj REV    D. Lj (L0 → L1)
5. NTj FWD
6. NTj REV
7. 500Tj FWD
8. 500Tj REV
9. 10k/20k FWD
0. 10k/20k REV
        SA.------ SI.-- EMG. 00
DVD SL 12 cm
```

On this screen, track jump, etc. can be performed. Only for the DVD-DL, the focus jump and layer jump are displayed in the right field.

1 1Tj FWD	1-track jump forward.
2 1Tj REV	1-track jump reverse.
3 2Tj FWD	2-track jump forward.
4 2Tj REV	2-track jump reverse.
5 NTj FWD	N-track jump forward.
6 NTj REV	N-track jump reverse.
7 500Tj FWD	Fine search forward.
8 500Tj REV	Fine search reverse.
9 10k/20k FWD	Direct search forward.
0 10k/20k REV	Direct search reverse.

– The following commands are valid for DVD-DL disc only –

→ Fj (L1 → L0)	Focus jump forward. (Trk/Sled Servo OFF)
← Fj (L0 → L1)	Focus jump reverse. (Trk/Sled Servo OFF)
↑ Lj (L1 → L0)	Layer jump forward. (Trk/Sled Servo ON)
↓ Lj (L0 → L1)	Layer jump reverse. (Trk/Sled Servo ON)

4. Manual Adjustment

```
        Manual Adjustment
1. TRK. Offset
2. Focus Gain
3. TRK. Gain
4. Focus Offset
5. Focus Balance
6. L.F. Offset
7. EQ BOOST
8. GD ADJ
Adjustment : Up/Down
                     Jitter 1D
        SA.------ SI.-- EMG. 00
DVD SL 12 cm
```

On this screen, each item can be adjusted manually. Select the desired number 1 to 8 from the remote commander, and current setting for the selected item will be displayed, then increase or decrease numeric value with ↑ key or ↓ key. This value is stored in the EEPROM. If CLV has been applied, the jitter is displayed for reference for the adjustment.

1	TRK. Offset	Adjusts tracking offset.
2	Focus Gain	Adjusts focus gain.
3	TRK. Gain	Adjusts track gain.
4	Focus Offset	Adjusts focus offset.
5	Focus Balance	Adjusts focus balance.
6	L.F. Offset	Adjusts loop filter offset.
7	EQ BOOST	
8	GD ADJ	

5. Auto Adjustment

```
         Auto Adjustment
1. Auto TRK. Offset
2. Auto Focus Balance
3. Auto Focus Offset
4. Auto Focus Gain
5. Auto TRK. Gain
6. Auto EQ
7. Auto L.F. Offset
8. Auto Group Delay


        SA.------ SI.-- EMG. 00
DVD SL 12 cm
```

On this screen, each item can be adjusted automatically. Select the desired number 1 to 8 from the remote commander, and selected item is adjusted automatically.

1	Auto TRK. Offset	Adjusts tracking offset.
2	Auto Focus Balance	Adjusts focus balance.
3	Auto Focus Offset	Adjusts focus offset.
4	Auto Focus Gain	Adjusts focus gain.
5	Auto TRK. Gain	Adjusts track gain.
6	Auto EQ	
7	Auto L.F. Offset	Adjusts loop filter offset.
8	Auto Group Delay	

6. Memory Check

```
EEPROM DATA 1          -- DL --
             CD LCD   SL  L0  L1
Focus Gain    xx xx    xx  xx  xx
TRK. Gain     xx xx    xx  xx  xx
FCS Balance   xx xx    xx  xx  xx
Focus Bias    xx xx    xx  xx  xx
TRV. Offset   xx xx    xx  xx  xx
L.F. Offset   xx xx    xx  xx  xx
EQ Boost      xx xx    xx  xx  xx
Mirror Time   xx --    xx  xx
_
DOWN : Next Data
CLEAR: Default Set    page. 1/2
```

```
EEPROM DATA 2          -- DL --
             CD LCD   SL  L0  L1
RF Jitter     xx --    xx  xx  xx
RF Level      xx --    xx  --  --
FE Level      xx --    xx  --  --
FE Balance    xx --    xx  --  --
TRV. Level    xx --    xx  --  --
Analog FRSW   xx xx    xx  xx  xx
PLL Dac Gain  xx xx    xx  xx  xx


_
UP : Prev Data
CLEAR: Default Set    page. 2/2
```

On this screen, current servo adjusted data stored in the EEPROM are displayed. The adjusted data are initialized by pressing the CLEAR key, but be careful that they are not recoverable after initialization.
Before clearing the adjusted data, make a note of the set data. This screen will also appear if 0 All is selected in the Drive Auto Adjustment. In this case, default setting cannot be made.
For reference, the drive has been designed so that the gain center value is 20 and offset value is 80. Other values will be in a range of 10 to 80. If extreme value such as 00 or FF is set, adjustment will be faulty. In such a case, check for disc scratch or cable disconnection, then perform adjustment again.

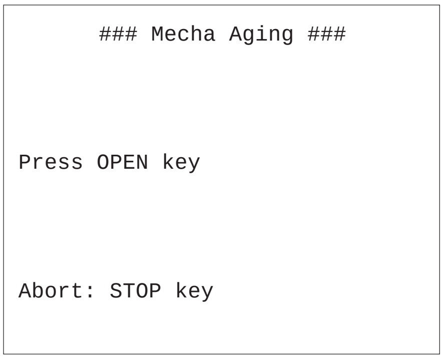
7. 5CHG Mecha Control

```
  ## 5CHG MechaControl Menu ##

ENTER   : Mecha Initial
OP/CL   : Tray Open/Close

UPDOWN  : TurnTable Stop
RIGHT   : TurnTable RightTurn
LEFT    : Turntable LeftTurn


RETURN  : Exit
```

ENTER Mecha Initial	Initializes the mechanism. When the Drive Manual Operation started, the mechanism is initialized. Use this when an error occurred.

OPEN/CLOSE Tray Open/Close	Opens/closes the disc tray.
Cursor UP/DOWN TurnTable Stop	Stops the turning of turntable.
Cursor RIGHT TurnTable RightTurn	Turns the turntable clockwise under full control.
Cursor LEFT TurnTable LeftTurn	Turns the turntable counterclockwise under full control.
RETURN Exit	Returns to Operation Menu.

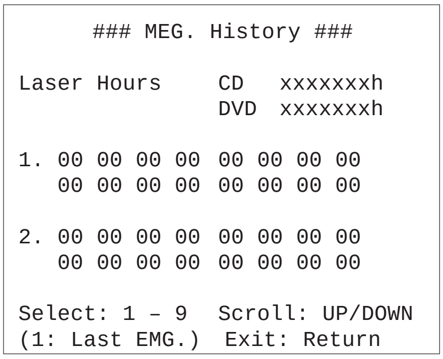
6-6. MECHA AGING



```
      ### Mecha Aging ###



Press OPEN key



Abort: STOP key
```

On the Test Mode Menu screen, selecting 3 executes the aging of mechanism. First, open the tray and load a disc. Press the PLAY key, and the aging will start. When the tray is closed, the disc type and size are judged and displayed. During aging, the repeat cycle is displayed. Aging can be aborted at any time by pressing the STOP key. After the operation has stopped, unload the disc and press again the STOP key or the RETURN key to return to the Test Mode Menu.

6-7. EMERGENCY HISTORY



```
      ### MEG. History ###

Laser Hours     CD   xxxxxxxh
                DVD  xxxxxxxh

1. 00 00 00 00  00 00 00 00
   00 00 00 00  00 00 00 00

2. 00 00 00 00  00 00 00 00
   00 00 00 00  00 00 00 00

Select: 1 – 9   Scroll: UP/DOWN
(1: Last EMG.)  Exit: Return
```

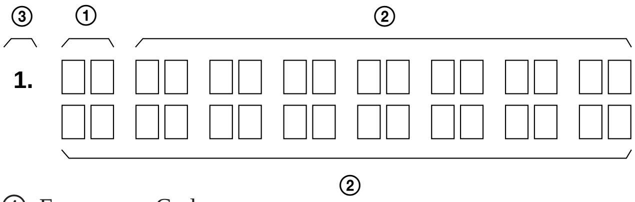
On the Test Mode Menu screen, selecting 4 displays the information such as servo emergency history. The history information from last 1 up to 10 can be scrolled with ↑ key or ↓ key. Also, specific information can be displayed by directly entering that number with ten keys.

The upper two lines display the laser ON total hours. Data below minutes are omitted.

Clearing History Information

◎ Clearing laser hours
Press DISPLAY and CLEAR keys in this order.
Both CD and DVD data are cleared.
Clearing emergency history
◎ Press TITLE and CLEAR keys in this order.
Initializing set up data
◎ Press DVD and CLEAR keys in this order.
The data have been initialized when "Set Up Initialized" message is displayed. The EMG. History screen will be restored soon.

How to see Emergency History



①: Emergency Code
②: Don't Care
These codes are used for verification of software designing.
③: Historical order 1 to 9

Emergency Codes List

10: Communication to IC202 (MB-101 board) failed.
11: Each servo for focus, tracking, and spindle is unlocked.
12: Communication to EEPROM, IC101 (MB-101 board) failed.
13: Writing of hours meter data to EEPROM, IC101 (MB-101 board) failed.
14: Communication to Servo DSP IC302 (MB-101 board) failed, or Servo DSP is faulty.
20: Initialization of tilt servo and sled servo failed. They are not placed in the initial position.
21: Tilt servo operation error
22: Syscon made a request to move the tilt servo to wrong position.
23: Sled servo operation error
24: Syscon made a request to move the sled servo to wrong position.
30: Tracking balance adjustment error
31: Tracking gain adjustment error
32: Focus balance adjustment error
33: Focus bias adjustment error
34: Focus gain adjustment error
35: Tilt servo adjustment error
36: RF equalizer adjustment error
37: RF group delay adjustment error
38: Jitter value after adaptive servo operation is too large.
40: Focus servo does not operate.
41: With a dual layer (DL) disc, focus jump failed.
50: CLV (spindle) servo does not operate.
51: Spindle does not stop.
60: With a DVD disc, Syscon made a request to seek nonexistent address.
61: With a CD disc, Syscon made a request to seek nonexistent address.
62: With a CD disc, Syscon made a request to seek nonexistent track No. and index No.
63: With a DVD disc, seeking of target address failed.
64: With a CD disc, seeking of target address failed.
65: With a CD disc, seeking of target index failed.
70: With a DVD disc, physical information data could not be read.
71: With a CD disc, TOC data could not be read.
80: Disc type judgment failed.
81: As disc type judgment failed, retry was repeated.
82: As disc type judgment failed, a measurement error occurred.
83: Disc type could not be judged within the specified time.
84: Illegal command code was received from Syscon.
85: Illegal command was received from Syscon.

6-8. VERSION INFORMATION

```
   ## Version Information ##

IF con.    Ver : x. xxx (xxxx)
           Group    00

SYScon.    Ver : x. xxx (xxxx)
           Model    xx
           Region   0x
Servo DSP.  Ver : 1. xxxx
OPT Type : x LASER

Exit: RETURN
_
```

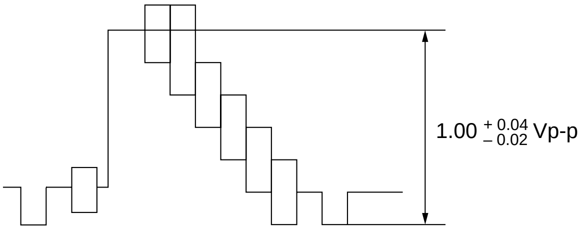
The ROM version, region code, OPT type, etc. are displayed if 5 is selected in the Test Mode Menu.
The parenthesized hexadecimal number in the version number field indicates the checksum value of the ROM.

Note : After down loading ROM data, sometimes it happens that checksum is not the same as that of ROM data which has been down loaded. In such a case, go back to the menu and select “0. Syscon Diagnosis”, then select “1. All” in “2. Version”. If the result of this operation does not give an agreement, it must be either Down Load error or ROM error.

6-9. VIDEO LEVEL ADJUSTMENT

On the Test Mode Menu screen, selecting 6 displays color bars for video level adjustment. During display of color bars, OSD disappears but the menu screen will be restored if pressing any key.

Measurement point : LINE OUT VIDEO
(75 Ω terminating resistance)
Measuring instrument : Oscilloscope
Adjustment device : RV501 on MB-101 board
Specified value : $1.00^{+0.04}_{-0.02}$ Vp-p



6-10. IF CON SELF DIAGNOSTIC FUNCTION

1. IF-85 BOARD (IF CON) TEST MODE

The front board test mode is the IF CON self diagnostic mode. The IF CON can diagnose the functions of the front panel boards that the IF CON controls. Normally, the IF CON makes a serial communication with the SYSTEM CONTROL and operates following the commands from the SYSTEM CONTROL, but in the Test mode, the IF CON operates independently from the SYSTEM CONTROL.

In the Test mode, the following functions can be checked.

1. Button function
2. Remote commander receiving function
3. SYSTEM CONTROL-IF CON serial communication
4. Click shuttle function
5. Fluorescent display tube lighting check
   Grid check
   Anode check
6. LED control function

In the Test mode, the set operates same as usual, except voltage monitoring, communication monitoring, display of fluorescent display tube, and LED control.

1. The routine that monitors +3.3 V (P-CONT) of MB-101 board is not provided.
2. The monitoring timer for serial communication with the SYSTEM CONTROL is not provided. The set is not placed in the Standby mode, even if the communication with SYSTEM CONTROL is normal.
3. Display of fluorescent display tube (normally, display is made following the commands from SYSTEM CONTROL)
4. LED control (normally, control is made following the commands from SYSTEM CONTROL)

2. OPERATION OF SELF CHECK MODE

The Self Check mode is the function to conduct the basic test to the FL display and DVD panel section.

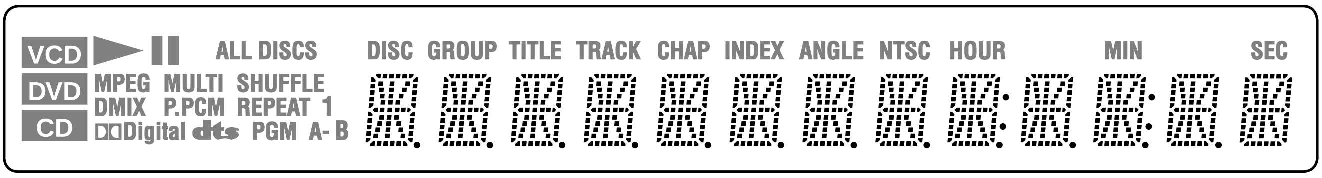
2-1. Self Check Mode Transition Processing

At the AC Power ON after IF CON (IC404) was reset, the input to 10pin (SELF CHECK) is judged and if “Low” is entered, the main unit transits to the Self Check mode. In this port input judgment, the result of 3-time attempts must be same (assuming that the MB-101 board are not connected). While pressing the STOP key on the main unit with the IF CON in STANDBY mode, enter RETURN → DISPLAY on the remote commander, and the unit transits to the Self Check Mode. The Self Check mode terminates when the IF CON transits to the STANDBY mode.

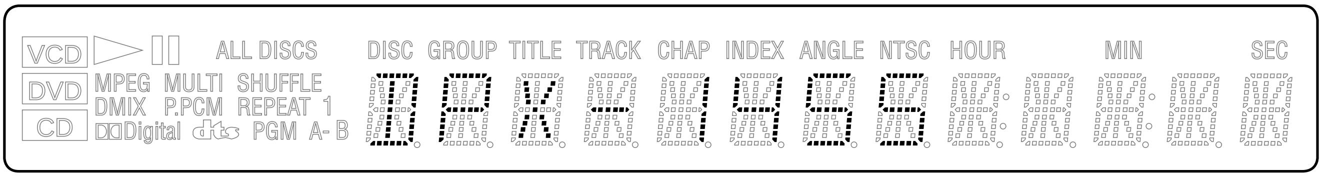
2-2. Operation of Auto Self Check

When the Self Check mode becomes active at the AC Power ON or by key input, the test display of the following steps (1) to (4) is repeated.

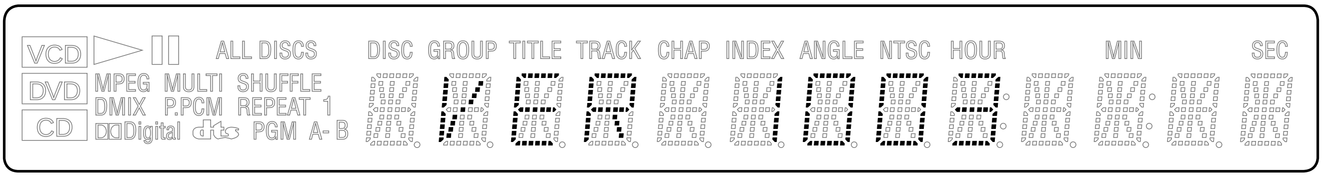
(1) FLD and LED all ON (for 5 seconds)


VCD
DVD
CD
MPEG MULTI SHUFFLE
DMIX P.PCM REPEAT 1
Digital dts PGM A- B
ALL DISCS
DISC GROUP TITLE TRACK CHAP INDEX ANGLE NTSC HOUR MIN SEC

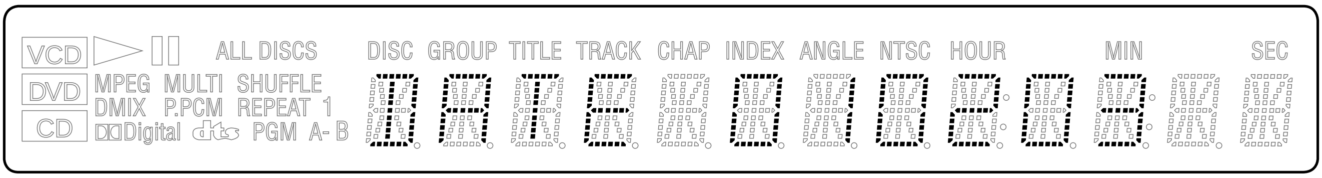
(2) MODEL display (for 2 seconds)


VCD
DVD
CD
MPEG MULTI SHUFFLE
DMIX P.PCM REPEAT 1
Digital dts PGM A- B
ALL DISCS
DISC GROUP TITLE TRACK CHAP INDEX ANGLE NTSC HOUR MIN SEC
DPK-1455

(3) Version display (for 2 seconds)


VCD
DVD
CD
MPEG MULTI SHUFFLE
DMIX P.PCM REPEAT 1
Digital dts PGM A- B
ALL DISCS
DISC GROUP TITLE TRACK CHAP INDEX ANGLE NTSC HOUR MIN SEC
VER 1003

(4) ROM creation date display (for 2 seconds)


VCD
DVD
CD
MPEG MULTI SHUFFLE
DMIX P.PCM REPEAT 1
Digital dts PGM A- B
ALL DISCS
DISC GROUP TITLE TRACK CHAP INDEX ANGLE NTSC HOUR MIN SEC
DATE 010203

2-3. Each Self Check Function

Each Self Check function tests the FLD display, LED display, and key input.

Input Voltage [V]	IC404: Pin No. (Signal)						
	Pin ㉛ (AD1)	Pin ㉜ (AD2)	Pin ㉝ (AD3)	Pin ㉞ (AD4)	Pin ㉟ (AD5)	Pin ㊱ (AD6)	Pin ㊲ (AD7)
0	ENTER	DVD MENU	5	PLAY	OPEN/CLOSE	LOAD	SURROUND
1.07	DOWN	RETURN	4	PAUSE	DISPLAY	TITLE	BNR
2.0	LEFT	ONE/ALL	3	PREVIOUS	DISC SKIP	–	–
3.0	UP	REPEAT	2	NEXT	EXCHANGE	–	–
3.96	RIGHT	SHUFFLE	1	–	–	–	–
5.0	–	–	–	–	–	–	–

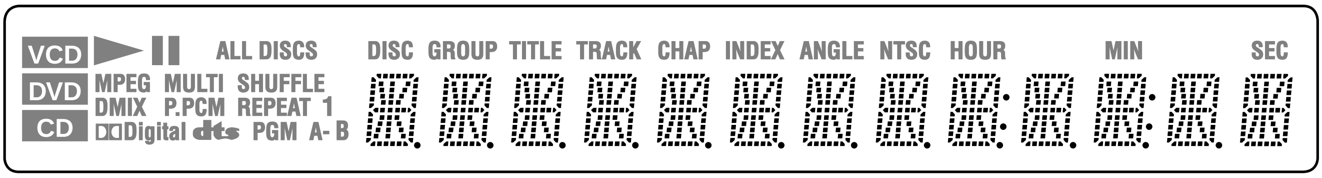
2-3-1. FLD and LED All ON

2-3-1-1. Transition Keys in Self Check Mode

- STOP key and OPEN/CLOSE key on the main unit
- LEFT key on the main unit and the remote commander

2-3-1-2. Operation and Display

In this mode, all LEDs except STANDBY LED and all segments of FLD turn ON.
Example of FLD all ON


VCD
DVD
CD
ALL DISCS
MPEG MULTI SHUFFLE
DMIX P.PCM REPEAT 1
Digital
dts
PGM A- B
DISC
GROUP
TITLE
TRACK
CHAP
INDEX
ANGLE
NTSC
HOUR
MIN
SEC

2-3-2. Main Unit Key Name Display and Key Code Display

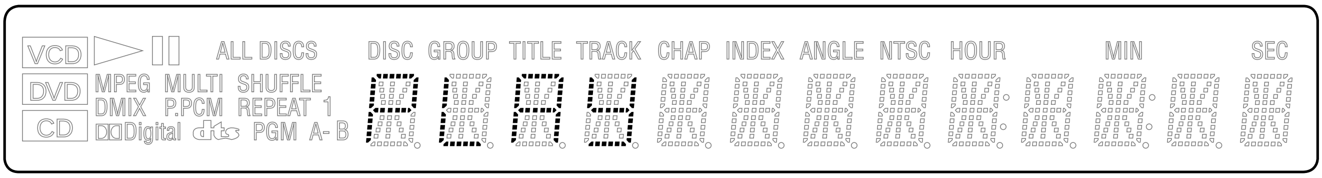
2-3-2-1. Transition Keys in Self Check Mode

- Keys on main unit except keys transited in self check

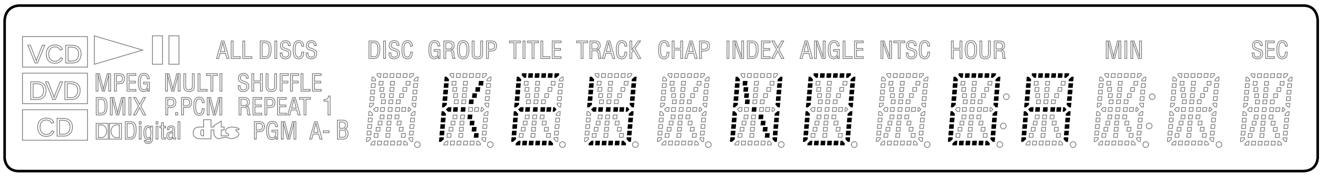
2-3-2-2. Operation and Display

When a key on the main unit is pressed in the Self Check mode, the name of that key is displayed on the FLD. Also, the key name display and the key code display can be switched with the DISPLAY key on the remote commander. “NOTHING” is displayed when nothing is entered. Also, VCD, DVD, and CD segments turn on when a communication error occurred.

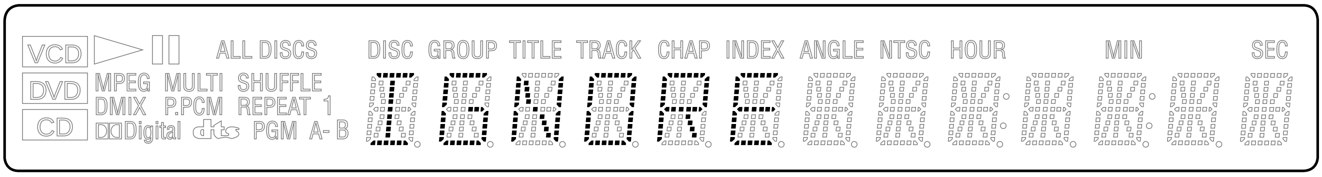
FLD display (at input of PLAY key on the main unit)


VCD
DVD
CD
ALL DISCS
MPEG MULTI SHUFFLE
DMIX P.PCM REPEAT 1
Digital
dts
PGM A- B
DISC
GROUP
TITLE
TRACK
CHAP
INDEX
ANGLE
NTSC
HOUR
MIN
SEC
PLAY

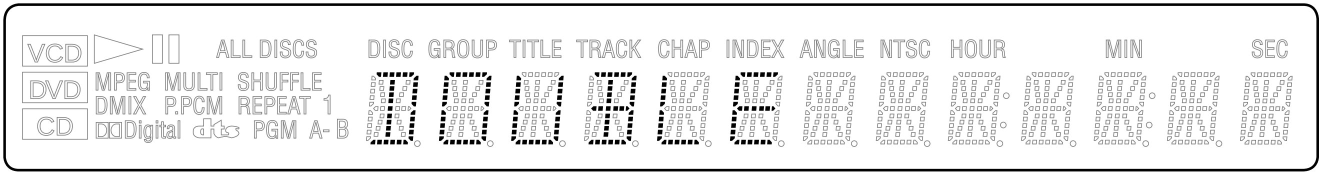
Key code display (at input of PLAY key, Key code: 0Ah)


VCD
DVD
CD
ALL DISCS
MPEG MULTI SHUFFLE
DMIX P.PCM REPEAT 1
Digital dts PGM A- B
DISC GROUP TITLE TRACK CHAP INDEX ANGLE NTSC HOUR MIN SEC
KEY NO 0A

At input of faulty voltage


VCD
DVD
CD
ALL DISCS
MPEG MULTI SHUFFLE
DMIX P.PCM REPEAT 1
Digital dts PGM A- B
DISC GROUP TITLE TRACK CHAP INDEX ANGLE NTSC HOUR MIN SEC
IGNORE

When two keys are pressed


VCD
DVD
CD
ALL DISCS
MPEG MULTI SHUFFLE
DMIX P.PCM REPEAT 1
Digital dts PGM A- B
DISC GROUP TITLE TRACK CHAP INDEX ANGLE NTSC HOUR MIN SEC
DOUBLE

2-3-3. Remote Commander Key Name Display and Key Code Display

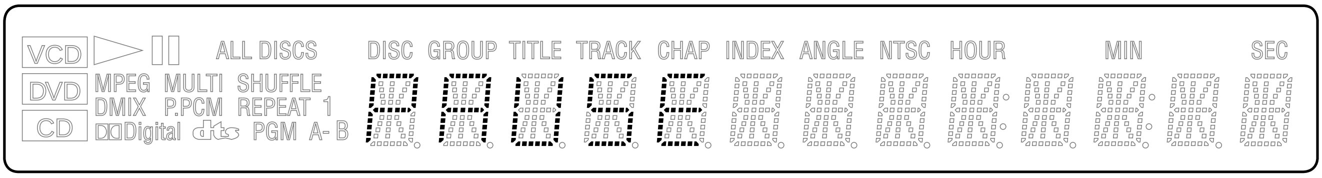
2-3-3-1. Transition Keys in Self Check Mode

- Remote commander keys except keys transited in self check

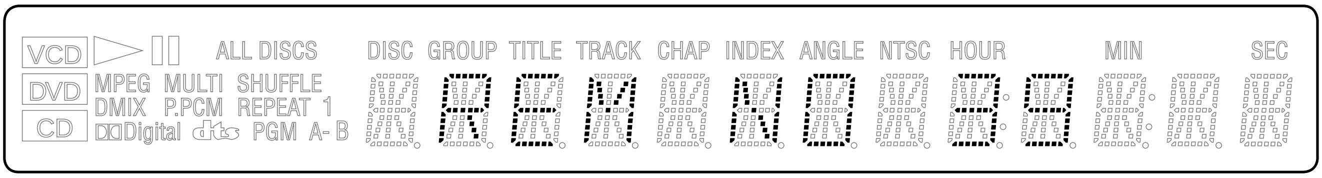
2-3-3-2. Operation and Display

When a key on the remote commander is pressed in the Self Check mode, the name of that key is displayed on the FLD. Also, the key name display and the key code display can be switched with the DISPLAY key on the remote commander. “NOTHING” is displayed when nothing is entered. Also, VCD, DVD, and CD segments turn on when a communication error occurred.

Remote commander key name display (at input of PAUSE key)


VCD
DVD
CD
ALL DISCS
MPEG MULTI SHUFFLE
DMIX P.PCM REPEAT 1
Digital dts PGM A- B
DISC GROUP TITLE TRACK CHAP INDEX ANGLE NTSC HOUR MIN SEC
PAUSE

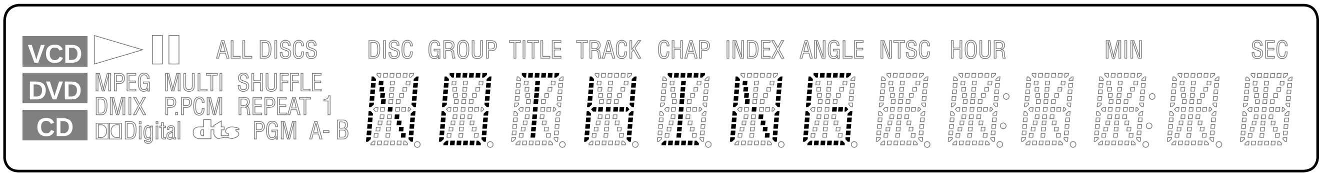
Remote commander key code display (at input of PAUSE key, Key code: 39h)


VCD
DVD
CD
ALL DISCS
MPEG MULTI SHUFFLE
DMIX P.PCM REPEAT 1
Digital dts PGM A- B
DISC GROUP TITLE TRACK CHAP INDEX ANGLE NTSC HOUR MIN SEC
REM NO 39

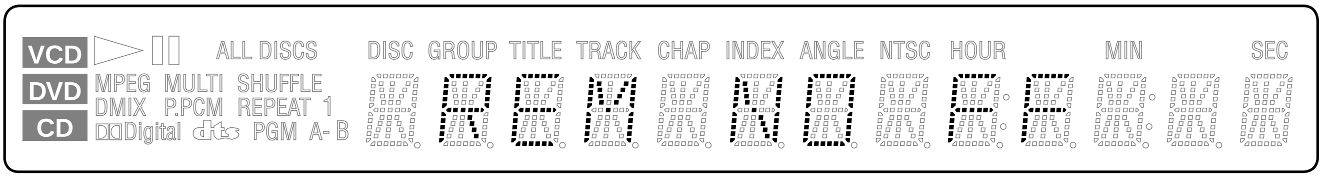
2-3-4. Communication Monitoring Display

The communication state is monitored and displayed while the key name on the main unit and the remote commander is displayed. When the communication to the System Controller failed, VCD, DVD, and CD segments turn on.

Communication error display (at no key input)


VCD
DVD
CD
ALL DISCS
MPEG MULTI SHUFFLE
DMIX P.PCM REPEAT 1
Digital dts PGM A-B
DISC GROUP TITLE TRACK CHAP INDEX ANGLE NTSC HOUR MIN SEC
NOTHING

Communication error display (at code display without input of the remote commander)


VCD
DVD
CD
ALL DISCS
MPEG MULTI SHUFFLE
DMIX P.PCM REPEAT 1
Digital dts PGM A-B
DISC GROUP TITLE TRACK CHAP INDEX ANGLE NTSC HOUR MIN SEC
REM NO FF

2-3-5. FLD Anode Test Display and SHUTTLE Click Operation Test

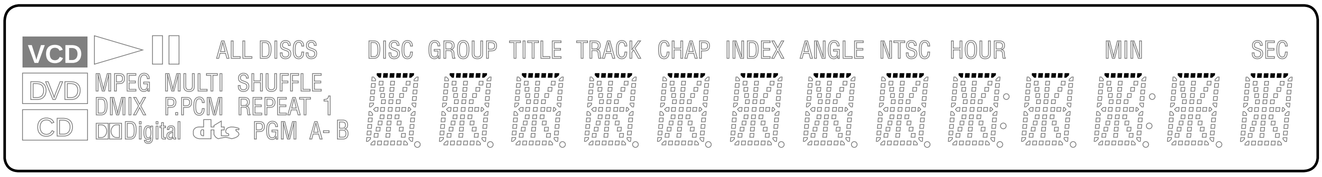
2-3-5-1. Transition Keys in Self Check Mode

- RIGHT on the main unit and the remote commander
- SHUTTLE on the remote commander during Anode Test display
  (This model does not provide JOG/SHUTTLE, and therefore use another DVD remote commander having the JOG/SHUTTLE)

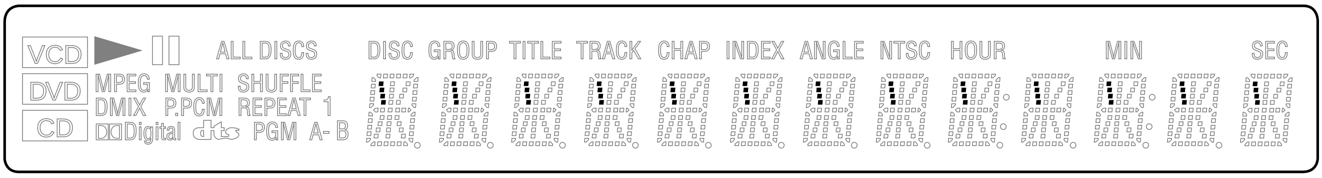
2-3-5-2. Operation and Display

The Self Check mode transits to this mode when RIGHT key is entered. Only the first segment of each grid of FLD turns on, and each time the SHUTTLE is entered, the segment of each grid is switched in order. When SHUTTLE input is clockwise, the segment switches in 1 → 2 → 3 direction, or counterclockwise it switches in 3 → 2 → 1 direction. This tests whether each segment turns on individually.

Display at the start of Anode Test


VCD
DVD
CD
ALL DISCS
MPEG MULTI SHUFFLE
DMIX P.PCM REPEAT 1
Digital dts PGM A-B
DISC GROUP TITLE TRACK CHAP INDEX ANGLE NTSC HOUR MIN SEC

↓ (Input in CW direction)


VCD
DVD
CD
ALL DISCS
MPEG MULTI SHUFFLE
DMIX P.PCM REPEAT 1
Digital dts PGM A-B
DISC GROUP TITLE TRACK CHAP INDEX ANGLE NTSC HOUR MIN SEC

2-3-6. FLD Grid Test Display and SHUTTLE Click Operation Test

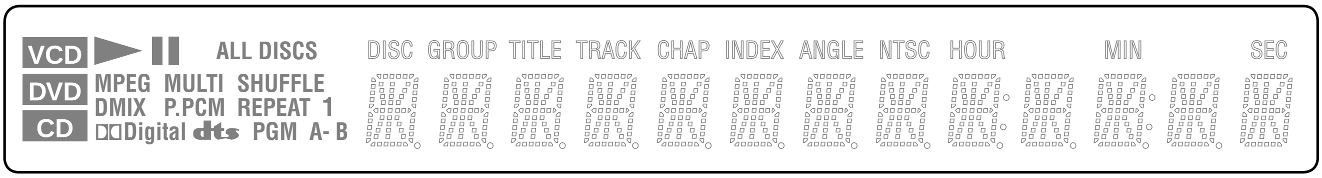
2-3-6-1. Transition Keys in Self Check Mode

- UP on the main unit and the remote commander
- SHUTTLE on the remote commander during Grid Test display (This model does not provide JOG/SHUTTLE, and therefore use another DVD remote commander having the JOG/ SHUTTLE)

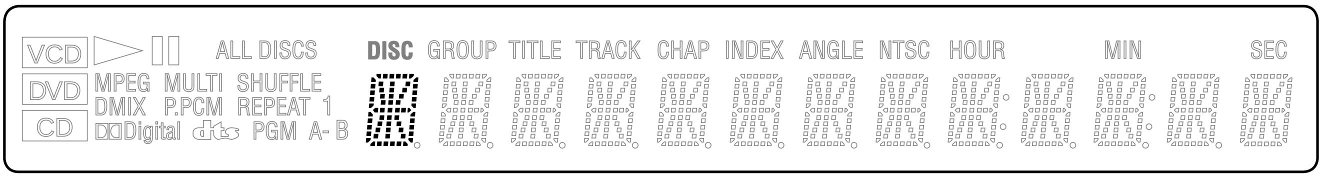
2-3-6-2. Operation and Display

The Self Check mode transits to this mode when UP key is entered. The first grid of FLD all turns on and other grids turn off. Each time the SHUTTLE is entered, the grid is switched in order. When SHUTTLE input is clockwise, the grid switches in 1 → 2 → 3 direction, or counterclockwise it switches in 3 → 2 → 1 direction. This tests whether each grid turns on individually.

Display at the start of Grid Test


VCD
DVD
CD
ALL DISCS
MPEG MULTI SHUFFLE
DMIX P.PCM REPEAT 1
Digital dts PGM A- B
DISC GROUP TITLE TRACK CHAP INDEX ANGLE NTSC HOUR MIN SEC

↓ (Input in CW direction)


VCD
DVD
CD
ALL DISCS
MPEG MULTI SHUFFLE
DMIX P.PCM REPEAT 1
Digital dts PGM A- B
DISC GROUP TITLE TRACK CHAP INDEX ANGLE NTSC HOUR MIN SEC

2-3-7. LED Test Display

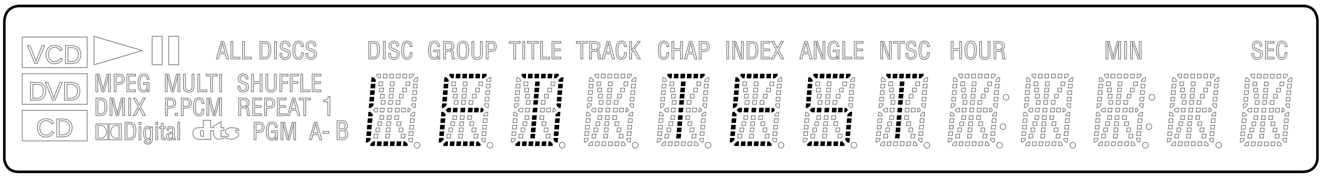
2-3-7-1. Transition Keys in Self Check Mode

- DOWN on the main unit and the remote commander
- SHUTTLE on the remote commander during LED Test display (This model does not provide JOG/SHUTTLE, and therefore use another DVD remote commander having the JOG/ SHUTTLE)

2-3-7-2. Operation and Display

LED is switched in order by the input of JOG/SHUTTLE. Also, LED ON/OFF is switched by the input of same key as the function that turns on the LED concerned.

FLD display during LED Test


VCD
DVD
CD
ALL DISCS
MPEG MULTI SHUFFLE
DMIX P.PCM REPEAT 1
Digital dts PGM A- B
DISC GROUP TITLE TRACK CHAP INDEX ANGLE NTSC HOUR MIN SEC
LED TEST

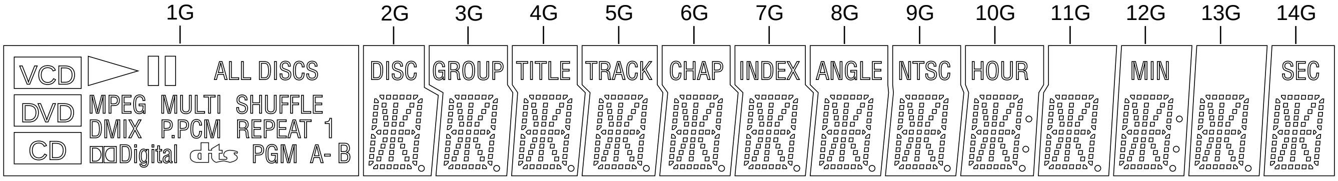
2-3-8. Beep Sound Test

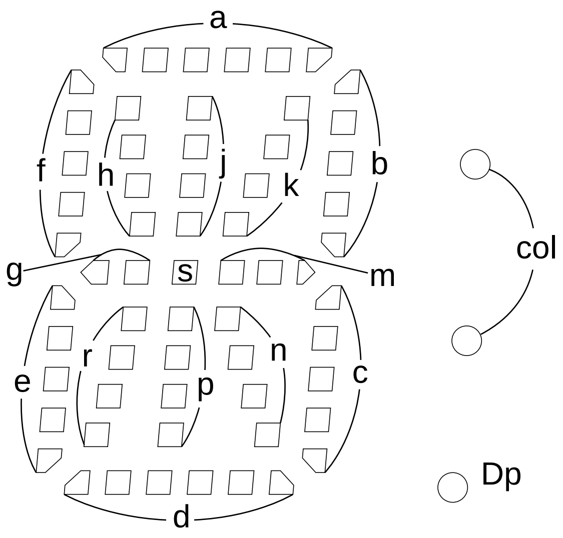
2-3-8-1. Transition Keys in Self Check Mode

- Input of a key on main unit

2-3-8-2. Operation and Display

In the Self Check mode, each time a key on the main unit is entered, a beep sound of 1kHz (100ms) is generated.


1G
2G
3G
4G
5G
6G
7G
8G
9G
10G
11G
12G
13G
14G
VCD
DVD
CD
ALL DISCS
MPEG
MULTI
SHUFFLE
DMIX
P.PCM
REPEAT 1
Digital
dts
PGM
A- B
DISC
GROUP
TITLE
TRACK
CHAP
INDEX
ANGLE
NTSC
HOUR
MIN
SEC


a
f
h
j
k
b
g
s
m
e
r
p
n
c
d
col
Dp

(1G~12G)

ANODE CONNECTION

	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	12G	13G	14G
P1	VCD	a	a	a	a	a	a	a	a	a	a	a	a	a
P2	▷	h	h	h	h	h	h	h	h	h	h	h	h	h
P3	▯▯	j	j	j	j	j	j	j	j	j	j	j	j	j
P4	ALL DISCS	k	k	k	k	k	k	k	k	k	k	k	k	k
P5	DVD	b	b	b	b	b	b	b	b	b	b	b	b	b
P6	MPEG	f	f	f	f	f	f	f	f	f	f	f	f	f
P7	MULTI	m	m	m	m	m	m	m	m	m	m	m	m	m
P8	SHUFFLE	s	s	s	s	s	s	s	s	s	s	s	s	s
P9	DMIX	g	g	g	g	g	g	g	g	g	g	g	g	g
P10	P.PCM	e	e	e	e	e	e	e	e	e	e	e	e	e
P11	REPEAT	n	n	n	n	n	n	n	n	n	n	n	n	n
P12	1	p	p	p	p	p	p	p	p	p	p	p	p	p
P13	B	r	r	r	r	r	r	r	r	r	r	r	r	r
P14	A-	c	c	c	c	c	c	c	c	c	c	c	c	c
P15	PGM	d	d	d	d	d	d	d	d	d	d	d	d	d
P16	dts	Dp	Dp	Dp	Dp	Dp	Dp	Dp	Dp	Dp	Dp	Dp	Dp	-
P17	DD Digital	-	-	-	-	-	-	-	-	col	-	col	-	-
P18	CD	DISC	GROUP	TITLE	TRACK	CHAP	INDEX	ANGLE	NTSC	HOUR	-	MIN	-	SEC

6-11. TROUBLESHOOTING

6-11-1. Cannot Enter Test Mode

You cannot enter the Test mode when either button has been pressed by any reason with the board assembled in the front panel. In this state, the power does not turn on even under normal condition (the set is kept in standby state), and also no button is active and the remote commander is not accepted. In this case, disconnect the MB-101 board, and with the SELF CHECK (⑩ pin) of IF CON (IC404) on the IF-85 board kept in low state, supply AC, and the Test mode will be forcibly activated. The IF CON (IC404) checks the SELF CHECK port only after the power on reset (only at AC supply, not in standby state). If any button is pressed, its name is displayed on the fluorescent display tube. But, if other than "NOTHING" is displayed though no button is pressed, it means that any button has been pressed.

6-11-2. Faults in Test Mode (MB-101 Board)

1. Test mode menu is not displayed

- Board visual check
  Check main IC's, SYSTEM CONTROL (IC104), ROM (IC106 or IC107), AVD (IC502), and ARP&SERVO (IC302), for mounting condition, direction, or evidence of short between pins, or soldering failure. Also, compare with good board to check if there are missing capacitors or resistors.
- Clock signal check
  Measure the clock frequency at CPUCK ((77) pin) of the SYSTEM CONTROL (IC104) using an oscilloscope.
  If 33 MHz is outputted, an access to the ROM is normal, and then check the items in 1-2.
  In the case of 8.25 MHz output, check the items in 1-1.
  If it is fixed to "H" or "L", the X101 or SYSTEM CONTROL (IC104) will be faulty.

1-1. CPUCK (33 MHz) is not outputted

- Power supply voltage check
  Check the power connectors of the boards or power input pins of the IC's for voltage. Check the IC's in order of SYSTEM CONTROL (IC104), ROM (IC106 or IC107), AVD (IC502), and ARP&SERVO (IC302). If correct voltage is not outputted, the power line will be shorted, or soldering or IC will be faulty.
- Reset signal check
  Check that the XFRRST ((76) pin) of SYSTEM CONTROL (IC104) is "H" (3.3 V). If not "H", a soldering failure of that line, a shot with other line, or faulty SYSTEM CONTROL (IC104) is doubtful.
- XRD, XWRH, and CS0X signals check
  Using an oscilloscope, measure the XRD ((70) pin), XWRH ((71) pin), and CS0X ((58) pin) of the SYSTEM CONTROL (IC104) to check if they are fixed to "L" (0 V) or "H" (3.3 V), or if they are on the intermediate potential between "L" and "H". If they are fixed to "L" or "H", or on the intermediate potential, a soldering failure of that line, a shot with other line, or faulty SYSTEM CONTROL (IC104) is doubtful.
- HA [0 – 21] and HD [0 – 15] signals check
  Using an oscilloscope, measure the HA [0 – 21] ((102) – (109), (111) – (118), (120), ① – ⑤ pins) and HD [0 – 15] ((85) – (100) pins) of the SYSTEM CONTROL (IC104) to check if they are fixed to "L" (0 V) or "H" (3.3 V), or if HA is on the intermediate potential between "L" and "H" (HD is on intermediate potential in normal state), or if same waveform as that of adjacent pins is measured. In case of "L" or "H", intermediate potential, or same waveform, a soldering failure of that line, a shot with other line, or faulty SYSTEM CONTROL (IC104) is doubtful.

1-2. CPUCK (33 MHz) is outputted (communication with ROM is normal)

- AVD (IC502) check
  Using an oscilloscope, measure the SDCLKO ((149) pin) of the AVD (IC502) to check that 95 MHz is outputted. If not outputted, a short of 27 MHz line across CLKI ((180) pin) and SCLKIN ((182) pin), IC mounting failure, or faulty AVD (IC502) is doubtful. If 27 MHz is outputted, the communication between SYSTEM CONTROL (IC104) and AVD (IC502) is disabled, and therefore check the following items, particularly the AVD (IC502).
- WAIT signal check
  Using an oscilloscope, measure the XWAIT ((67) pin) of the SYSTEM CONTROL (IC104) to check if it is fixed to "L" (0 V) or on the intermediate potential. In case of "L" or intermediate potential, examine CS2X – CS5X ((60) – (63) pins) to check if any pin is fixed to "L".
  For the CS2X and CS3X, AVD (IC502) mounting failure or faulty IC is doubtful.
  For the CS4X and CS5X, ARP&SERVO (IC302) mounting failure or faulty IC is doubtful.
  If CS2X – CS5X are not "L", or they are sometimes on intermediate potential, a soldering failure of XWAIT line, a short with other line, or faulty SYSTEM CONTROL (IC104) is doubtful.
- INT signal check
  Using an oscilloscope, measure the INT0 – 2, 4 – 6 (⑯ – ⑱ pins, ⑳ – ㉒ pins) of the SYSTEM CONTROL (IC104) to check if INT0 – 2, and 6 are fixed to "L" (0 V) and INT5 is fixed to "H" (3.3 V), or they are on intermediate potential. In case of "L", "H", or intermediate potential, a soldering failure of IC's connected to that line, a short with other line, faulty SYSTEM CONTROL (IC104), or faulty each IC is doubtful.
  INT0 : AVD (IC502)
  INT1, INT2 : ARP&SERVO (IC302)
  INT5, INT6 : AUDIO DSP (IC601)
- CSnX signals check
  Using an oscilloscope, measure the CX0X – CX7X ((58) – (63), (65), (66) pins) of the SYSTEM CONTROL (IC104) to check if they are fixed to "L" (0 V), or two or more CS's sometime go "L", or on intermediate potential. In case of fixed "L", two or more CS's on "L" or intermediate potential, a soldering failure of IC's connected to that line, a short with other line, faulty SYSTEM CONTROL (IC104), or faulty each IC is doubtful.
  CS0X : ROM (IC106 or IC107)
  CS2X, CS3X : AVD (IC502)
  CS4X, CS5X : ARP&SERVO (IC302)
- Other CS signals check
  Using an oscilloscope, measure the VESCS/X38CS ((80) pin) and XDACS ((79) pin) of the SYSTEM CONTROL (IC104) to check if they are fixed to "L". If fixed, a soldering failure of that line, a short with other line, or faulty SYSTEM CONTROL (IC104) is doubtful.

If the above checking could not find a fault, check the outputted CS signal. If CS signal other than CS0X is outputted, a mounting failure of each IC or faulty IC that corresponds to active CS signal is doubtful.

CS2X, CS3X: AVD (IC502)
CS4X, CS5X: ARP&SERVO (IC302)

2. Test mode menu is displayed, but operation stops when a menu is selected

Using an oscilloscope, measure the PLCKO ((95) pin) of the ARP&SERVO (IC302) to check if it is fixed to "L" (0 V) or "H" (3.3 V). If fixed to "L" or "H", the ARP&SERVO (IC302) is faulty. If not fixed, check the items in 1-2. in order.

3. Specific item failed in Diag All Check

A mounting failure of IC or faulty IC for that item is doubtful.
If “1901NG” is displayed, a loose connection of CN601, mounting failure of AUDIO DSP (IC601), or faulty IC is doubtful.

4. Picture and sound are not outputted

Check the CN601 & 501 for connection, and the flat cable for damage or loose connection.

5. Picture is outputted, but sound is not outputted

A mounting failure of AUDIO DSP (IC601) or AUDIO DAC (IC603, IC604), power supply failure, or faulty IC is doubtful.

6. Sound is outputted, but picture is not outputted

Using an oscilloscope, measure the (63), (66), (69), (74), (77), and (80) pins of AVD (IC502) to check if analog signals are outputted respectively. If not outputted, a soldering failure of that line, a short with other line, missing capacitor or resistor, or faulty AVD is doubtful.

6-11-3. Drive Auto Adjustment stops by an error

Faulty analog circuits of ARP&SERVO (IC302) or faulty peripheral circuits of DIGITAL SERVO (IC201) on the MB-101 board, faulty optical pickup, or loose connection of flat cable is doubtful.

6-11-4. Power is Supplied but Unstable

If Syscon Diagnosis completed successfully, basically the boards other than MB-101 board, connection, optical pickup, or mechanical deck will be faulty.

1. Red LED does not light when AC is supplied

Check if the specified voltage is outputted from the EVER +5 V (⑦ pin) of CN201 in the power supply block. If not outputted, the power supply block will be faulty.

2. At POWER button ON, LED does not light in green even once, but kept in red (standby state)

Check if the specified voltage is outputted from the EVER +5 V (⑦ pin) of CN201 in the power supply block. If not outputted, the power supply block will be faulty.
When press the POWER button, check the P-CONT (④ pin) of CN401 on the IF-85 board if it becomes “H”. If not “H”, a soldering failure of that line, a short with other line, missing capacitor or resistor, faulty AVD (IC502), loose connection between power supply block and IF-85 board, loose connection of connectors, faulty power supply block, or faulty IF-85 board is doubtful.

3. At POWER button ON, LED lights in green but returns to red (standby state) after several seconds (e.g. it returns to standby state after “SONY DVD” was displayed)

There is no regularity between faulty parts and timing when the set returns to the standby state).
Check if the specified voltage is outputted from the power supply block. If not outputted, the power supply block will be faulty.
Check the XFRRST (⑦ pin) of CN101 on the MB-101 board if it is fixed to “L”, or the XIBUSY (⑥ pin), XIFCS (⑤ pin), SI0 (④ pin), SO0 (③ pin) and SC0 (② pin) of CN101 if they are fixed to “L” or “H”.
If fixed to “L” or “H”, a soldering failure of that line, a short with other line, missing capacitor or resistor, or faulty SYSTEM CONTROL (IC104) is doubtful.
If not fixed to “L” or “H”, loose connection between power supply block and IF-85 board or between IF-85 board and MB-101 board, loose connection of connectors, or faulty IF-85 board is doubtful.

4. At POWER button ON, LED lights in green but fluorescent display tube does not light

Loose connection between power supply block and IF-85 board, loose connection of connectors, or faulty IF-85 board is doubtful.

5. Picture and sound are not outputted

Loose connection between power supply block and IF-85 board or between IF-85 and AV-60 board or between AV-60 board and MB-101 board, loose connection of connectors, or faulty AV-60 board is doubtful.

6. Picture is out outputted correctly

A mounting failure of BNR (IC504) on the MB-101 board, or faulty AVD (IC502) or ARP&SERVO (IC302), or faulty 27 MHz output (frequency, waveform) from 27-1OUT (③, ④ pin) of PLL (IC103) is doubtful.

6-11-5. Power is not Supplied

1. Red LED does not light when AC is supplied

The power (EVER +5 V) is not supplied to the IF CON (IC404) on the IF-85 board.
The X401 does not oscillate.

2. At POWER button ON, LED is kept in red (standby state)

Any button has been pressed.
The voltage at PONCHK (㉚ pin) of the IF CON (IC404) on the IF-85 board exceeds 0.5 V.

3. At POWER button ON, LED lights in green but returns to red (standby state) after several seconds

The PONCHK (㉚ pin) of the IF CON (IC404) on the IF-85 board is abnormal (slow rising from 0.5 V to more than 1.5 V, or voltage not rising to more than 1.5 V).
The SYSTEM CONTROL (IC104) on the MB-101 board is faulty.

SECTION 7
ELECTRICAL ADJUSTMENT

In making adjustment, refer to 7-3. Adjustment Related Parts Arrangement.

Note: During diagnostic check, the characters and color bars can be seen only with the NTSC monitor. Therefore, for diagnostic check, use the monitor that supports both NTSC and PAL modes.

This section describes procedures and instructions necessary for adjusting electrical circuits in this set.

Instruments required:

1) Color monitor TV
2) Oscilloscope 1 or 2 phenomena, band width over 100 MHz, with delay mode
3) Frequency counter (over 8 digits)
4) Digital voltmeter
5) Standard commander (RMT-D133A)
6) DVD reference disc
   HLX-501 (J-6090-071-A) (dual layer) (NTSC)
   HLX-503 (J-6090-069-A) (single layer) (NTSC)
   HLX-504 (J-6090-088-A) (single layer) (NTSC)
   HLX-505 (J-6090-089-A) (dual layer) (NTSC)
7) SACD reference disc
   HLXA-509 (J-6090-090-A)
8) Extention Cable (J-6090-107-A)

7-1. POWER SUPPLY ADJUSTMENT

1. Power Supply Check (MPN4801 Board)

Mode	E-E
Instrument	Digital voltmeter
SW +3.3 V Check	
Test point	CN101 pin ⑧, ⑨
Specification	3.45 ± 0.2 Vdc
EVER +5 V Check	
Test point	CN101 pin ⑦
Specification	5.1 ± 0.2 Vdc
SW +5 V Check	
Test point	CN101 pin ⑤, ⑥
Specification	5.1 ± 0.2 Vdc
SW +11 V Check	
Test point	CN101 pin ③, ④
Specification	11.0 ± 1.0 Vdc
SW –11 V Check	
Test point	CN101 pin ⑭, ⑮
Specification	–11.0 ± 1.0 Vdc

Checking method:

1) Confirm that each voltage satisfies the specification.

2. +11 V Adjustment

Mode	PB
Measuring Instrument	Digital voltmeter
Measurement Point	CN101 pin ③, ④
Adjusting Element	VR101
Specified Value	11.0 ± 1.0 V

3. +5 V Adjustment

Mode	PB
Measuring Instrument	Digital voltmeter
Measurement Point	CN101 pin ⑦
Adjusting Element	VR301
Specified Value	5.1 ± 0.2 V

4. –11 V Adjustment

Mode	PB
Measuring Instrument	Digital voltmeter
Measurement Point	CN101 pin ⑭, ⑮
Adjusting Element	VR401
Specified Value	–11.0 ± 1.0 V

7-2. ADJUSTMENT OF VIDEO SYSTEM

1. Video Level Adjustment (MB-101 Board)

<Purpose>

This adjustment is made to satisfy the NTSC/PAL standard, and if not adjusted correctly, the brightness will be too large or small.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	LINE OUT (VIDEO) connector (75 Ω terminated)
Instrument	Oscilloscope
Adjusting element	RV501
Specification	$1.00^{+0.04}_{-0.02}$ Vp-p

Adjusting method:

1) In the test mode initial menu “6” Video Level Adjustment, set so that color bars are generated.
2) Adjust the RV501 to attain $1.0^{+0.04}_{-0.02}$ Vp-p.

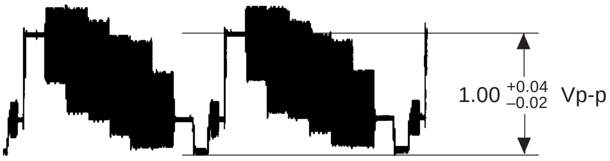


Figure 7-1

2. Checking S Video Output S-Y

<Purpose>

Check S-terminal video output. If it is incorrect, pictures will not be displayed correctly in spite of connection to the TV with a S-terminal cable.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	S VIDEO OUT (S-Y) connector (75 Ω terminated)
Instrument	Oscilloscope
Specification	1.00 ± 0.05 Vp-p

Checking method:

1) In the test mode initial menu “6” Video Level Adjustment, set so that color bars are generated.
2) Confirm that the S-Y level is 1.00 ± 0.05 Vp-p.

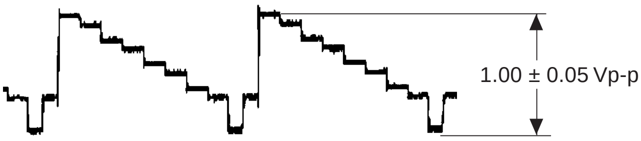


Figure 7-2

3. Checking S Video Output S-C

<Purpose>

This checks whether the S-C satisfies the NTSC/PAL Standard. If it is not correct, the colors will be too dark or light.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	S VIDEO OUT (S-C) connector (75 Ω terminated)
Instrument	Oscilloscope
Specification	A = 286 ± 30 mVp-p (NTSC) A = 300 ± 100 mVp-p (PAL)

Checking method:

1) In the test mode initial menu “6” Video Level Adjustment, set so that color bars are generated.
2) Confirm that the S-C burst is “A”.

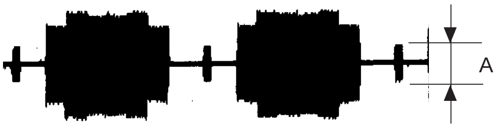


Figure 7-3

4. Checking Component Video Output Y

<Purpose>

This checks component video output Y. If it is incorrect, correct brightness will not be attained when connected to, for instance, projector.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	COMPONENT VIDEO OUT (Y) connector (75 Ω terminated)
Instrument	Oscilloscope
Specification	1.00 ± 0.05 Vp-p

Checking method:

1) In the test mode initial menu “6” Video Level Adjustment, set so that color bars are generated.
2) Confirm that the Y level is 1.00 ± 0.05 Vp-p.

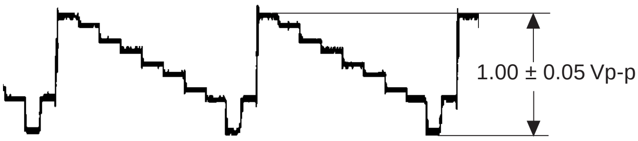


Figure 7-4

5. Checking Component Video Output B-Y

<Purpose>

This checks component video output B-Y. If it is incorrect, correct colors will not be displayed when connected to, for instance, projector.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	COMPONENT VIDEO OUT (P_B) connector (75 Ω terminated)
Instrument	Oscilloscope
Specification	700 ± 50 mVp-p

Checking method:

1) In the test mode initial menu “6” Video Level Adjustment, set so that color bars are generated.
2) Confirm that the B-Y level is 700 ± 50 mVp-p.

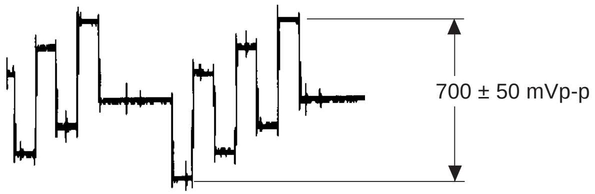


Figure 7-5

6. Checking Component Video Output R-Y

<Purpose>

This checks component video output R-Y. If it is incorrect, correct colors will not be displayed when connected to, for instance, projector.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	COMPONENT VIDEO OUT (P_R) connector (75 Ω terminated)
Instrument	Oscilloscope
Specification	700 ± 50 mVp-p

Checking method:

1) In the test mode initial menu “6” Video Level Adjustment, set so that color bars are generated.
2) Confirm that the R-Y level is 700 ± 50 mVp-p.

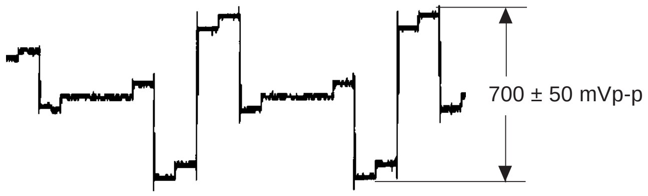
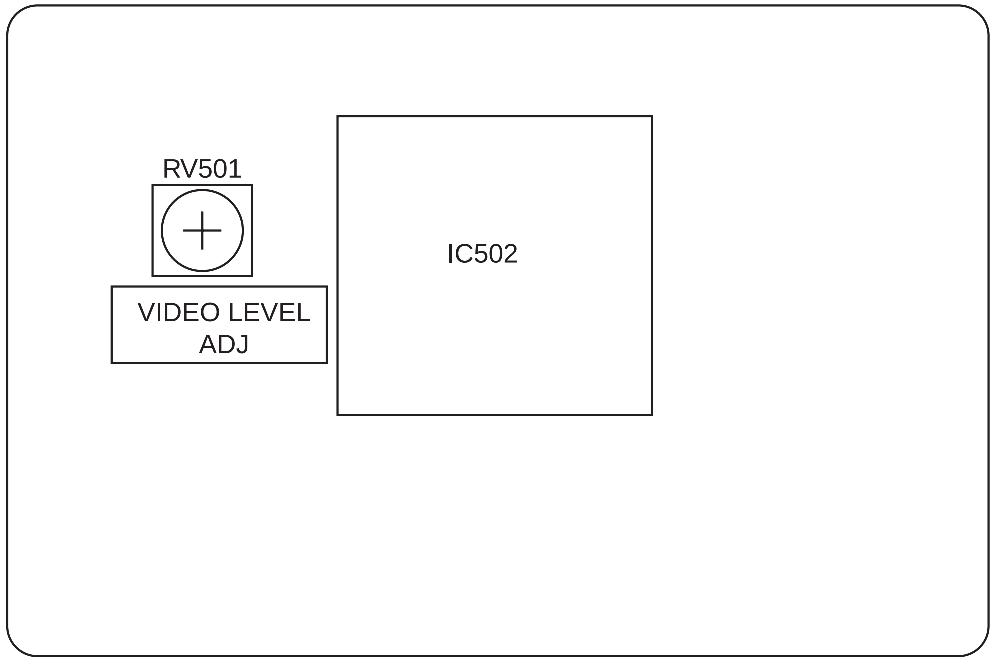


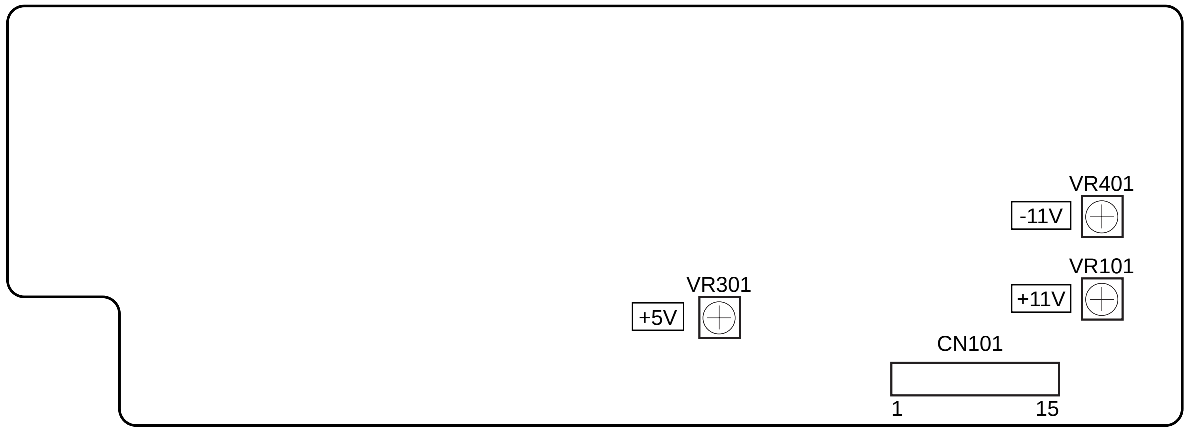
Figure 7-6

7-3. ADJUSTMENT RELATED PARTS ARRANGEMENT

MB-101 BOARD (SIDE A)



MPN4801 BOARD (SIDE A)



SECTION 8
REPAIR PARTS LIST

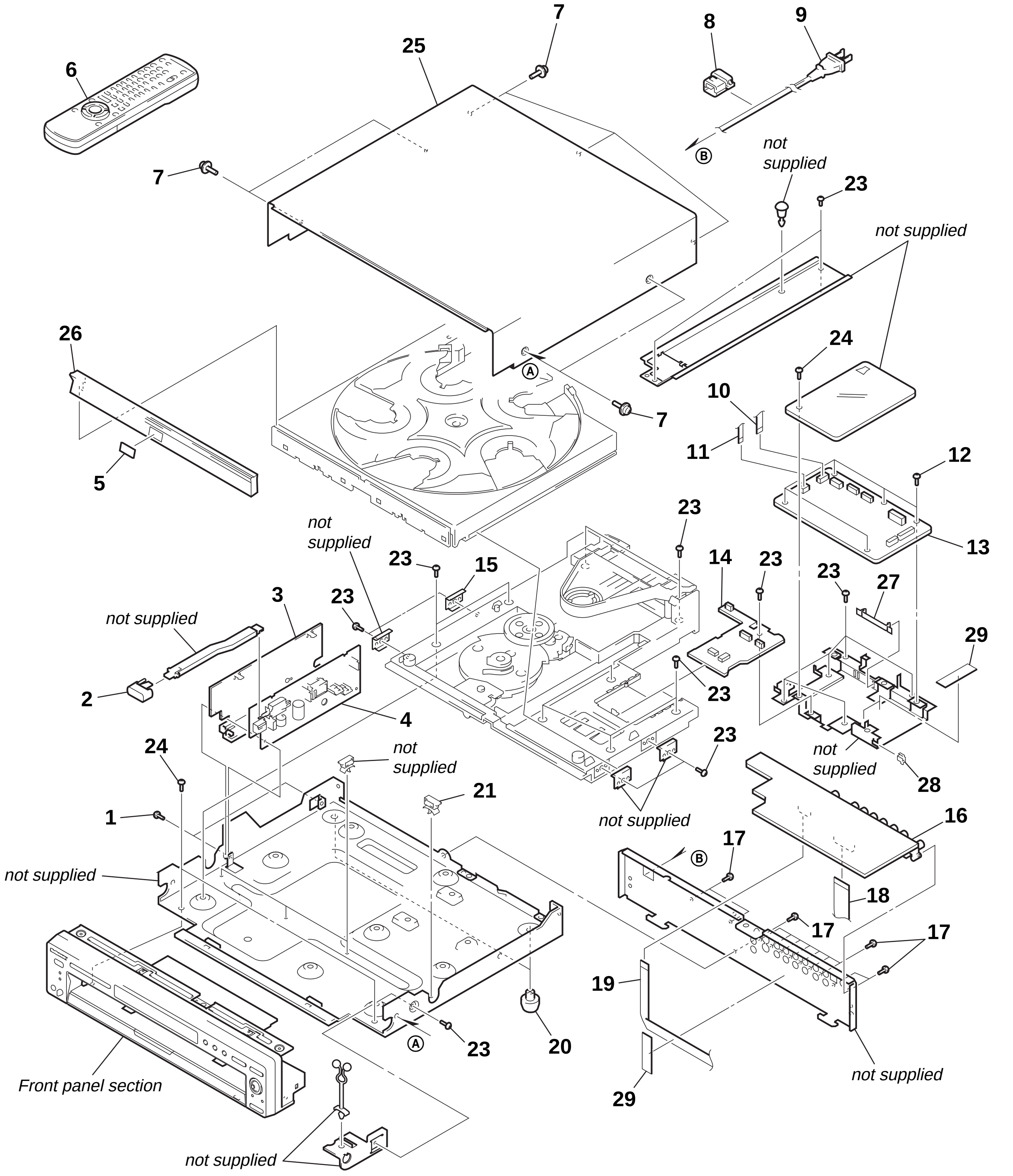
8-1. EXPLODED VIEWS

NOTE:
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- The mechanical parts with no reference number in the exploded views are not supplied.
- Accessories and packing materials are given in the last of the electrical parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

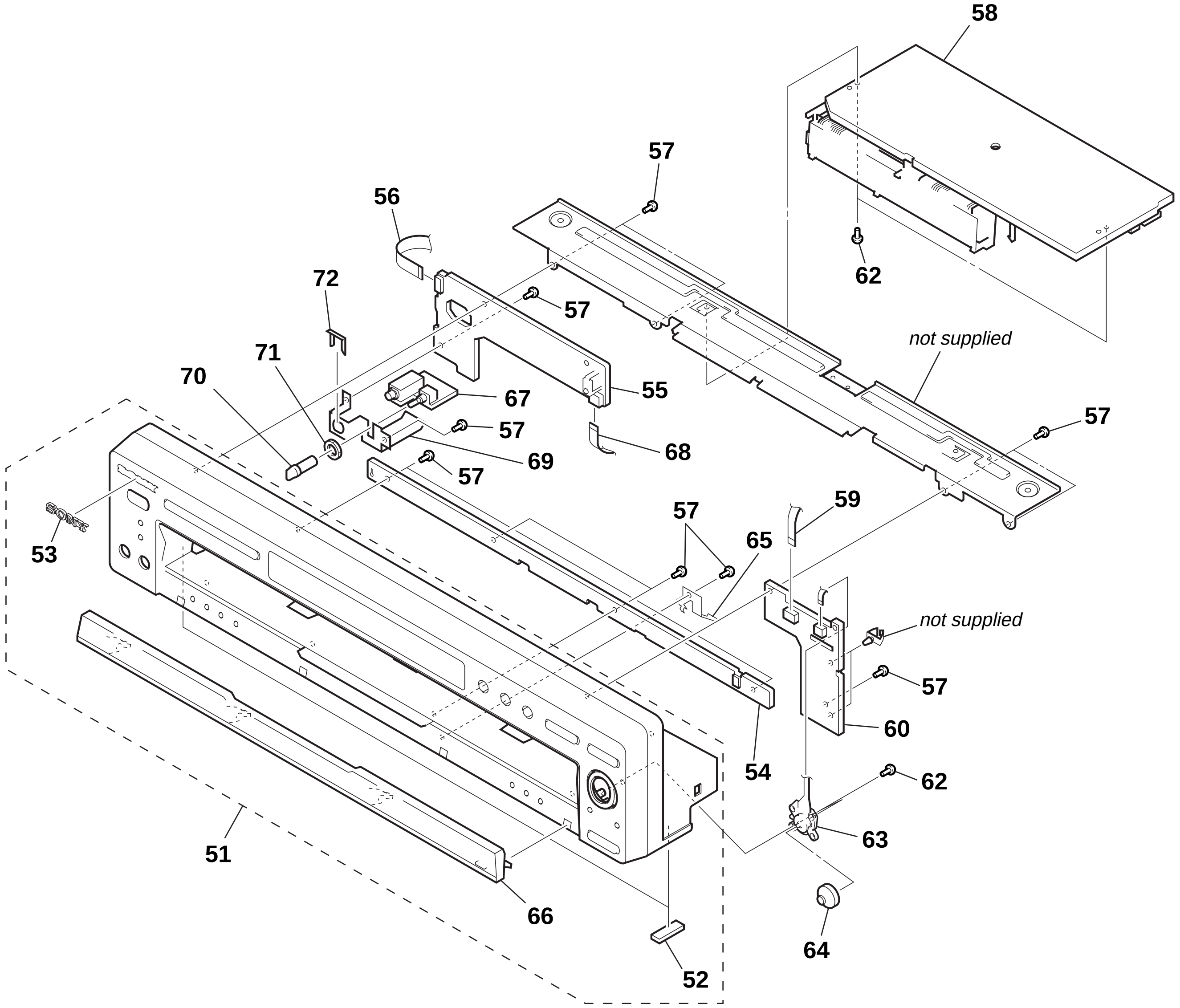
Les composants identifiés par une marque ⚠ sont critiquens pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

8-1-1. MAIN ASSEMBLY


7
8
9
25
6
7
B
not supplied
23
not supplied
26
24
A
10
7
11
12
5
23
not supplied
23
15
14
23
23
13
27
3
23
not supplied
29
2
4
23
24
not supplied
23
21
not supplied
not supplied
28
1
16
17
B
not supplied
18
17
17
19
A
23
20
not supplied
Front panel section
29
not supplied

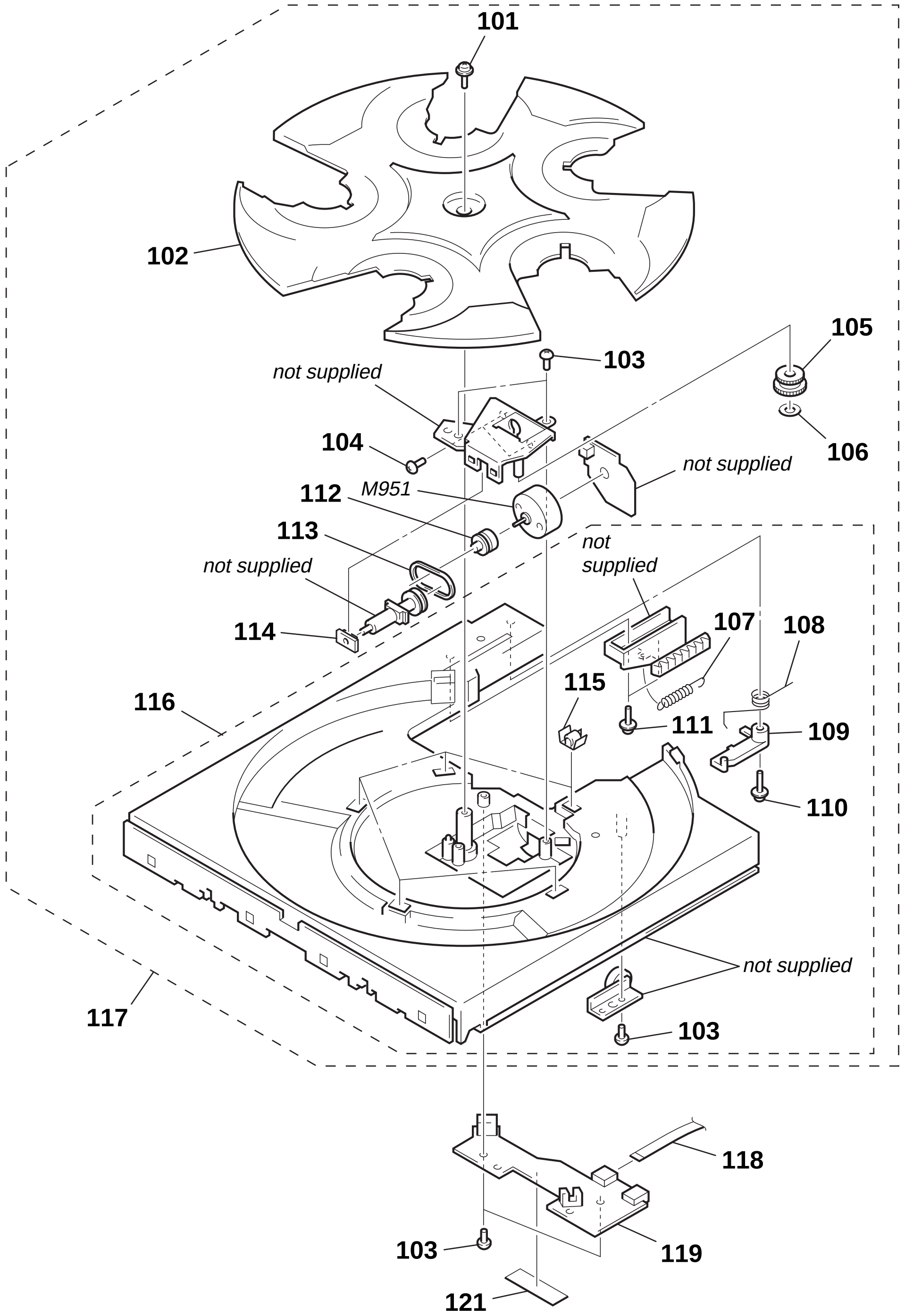
Ref. No.	Part No.	Description	Remark
1	3-062-340-01	+BV SUMITITE B3 EXT W (3X8)	
2	3-067-232-11	BUTTON (POWER)	
3	3-061-954-01	COVER, PWB	
* 4	1-468-591-11	POWER BLOCK (MPN4801)	
5	3-067-237-01	EMBLEM (V), DVD	
6	1-476-890-11	COMMANDER, STANDARD (RMT-D133A)	
7	3-710-901-41	SCREW, TAPPING	
8	4-966-267-12	BUSHING (FBS001), CORD	
⚠9	1-783-531-31	CORD, POWER	
10	1-823-278-11	CABLE, FLEXIBLE FLAT (FCM-015)	
11	1-823-279-11	CABLE, FLEXIBLE FLAT (FCM-016)	
12	3-055-791-01	SUMITITE (B3) (RING), +BV	
* 13	A-6065-729-A	MB-101 BOARD, COMPLETE	
* 14	A-6065-731-A	CN-143 BOARD, COMPLETE	
15	4-957-280-31	BRACKET (GUIDE B1)	
* 16	A-6065-730-A	AV-60 BOARD, COMPLETE	
17	3-970-608-51	SUMITITE (B3), +BV	
18	1-823-273-11	CABLE, FLEXIBLE FLAT (FAM-009)	
19	1-823-274-11	CABLE, FLEXIBLE FLAT (FAM-010)	
20	3-957-819-01	FOOT	
21	4-215-927-01	CLAMP	
23	3-970-608-11	SUMITITE (B3), +BV	
24	3-970-608-01	SUMITITE (B3), +BV	
25	3-070-697-01	CASE, UPPER	
26	3-066-134-21	COVER, TRAY	
* 27	3-225-496-01	CLAMP (FLAT CLAMP 45)	
* 28	4-641-552-01	SADDLE, LOCK EDGE	
29	3-071-200-01	TAPE (BU)	

8-1-2. FRONT PANEL ASSEMBLY


58
57
56
72
57
62
not supplied
71
70
67
55
57
57
68
69
57
59
57
65
53
not supplied
57
60
54
62
51
63
66
64
52

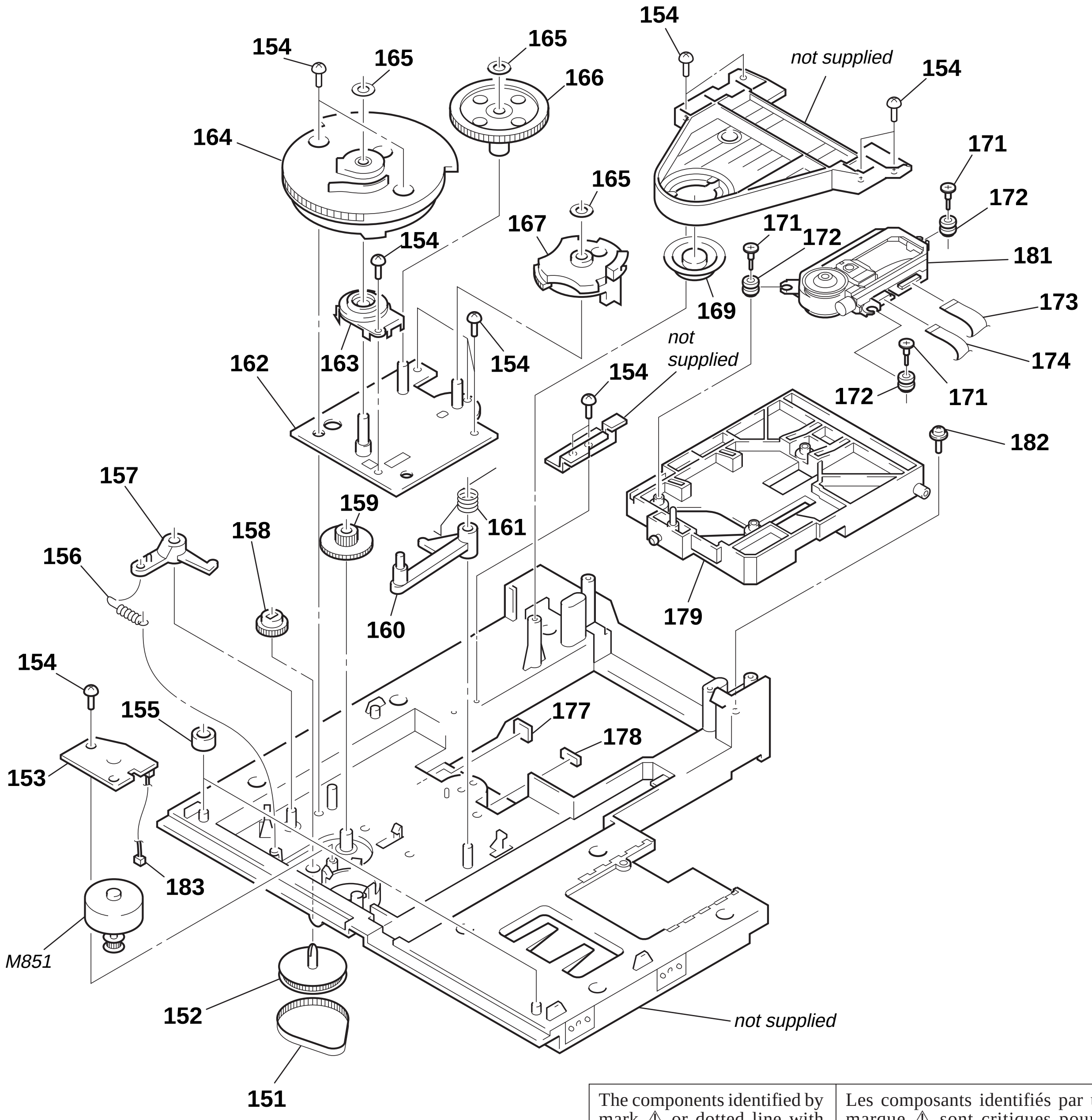
Ref. No.	Part No.	Description	Remark
51	X-3951-806-1	FRONT PANEL ASSY	
52	3-059-349-11	LEG CUSHION	
53	3-943-995-01	EMBLEM (NO.5), SONY	
* 54	A-6065-726-A	SW-356 BOARD, COMPLETE	
* 55	A-6065-725-A	FR-180 BOARD, COMPLETE	
56	1-823-275-11	CABLE, FLEXIBLE FLAT (FFR-012)	
57	4-951-620-01	SCREW (2.6X8), +BVTP	
* 58	A-6065-732-A	IF-85 BOARD, COMPLETE	
59	1-823-277-11	CABLE, FLEXIBLE FLAT (FFL-002)	
* 60	A-6065-724-A	FL-124 BOARD, COMPLETE	
62	3-970-608-11	SUMITITE (B3), +BV	
63	1-786-131-11	SWITCH, TACTILE	
64	3-069-136-01	CURSOR STICK	
65	3-066-150-01	LEAF SPRING, DOOR	
66	X-3951-807-1	DOOR FRONT ASSY	
* 67	A-6065-733-A	HP-133 BOARD, COMPLETE	
68	1-823-276-11	CABLE, FLEXIBLE FLAT (FFR-013)	
69	3-066-151-01	BRACKET, HP	
70	3-054-217-41	KNOB, VOLUME	
71	2-118-268-01	NUT (M9), HEXAGON	
* 72	3-684-436-01	PLATE, MOUNT	

8-1-3. TABLE ASSEMBLY


101
102
105
103
not supplied
106
104
not supplied
112
M951
113
not supplied
not supplied
114
107
108
116
115
111
109
110
not supplied
117
103
118
103
119
121

Ref. No.	Part No.	Description	Remark
101	7-685-648-79	SCREW (M3X12), TAPPING	
102	3-062-119-03	TABLE (ROTARY)	
103	3-970-608-11	SUMITITE (B3), +BV	
104	7-621-773-93	SCREW +B 2.6X3	
105	3-051-063-01	GEAR (DRIVE)	
106	3-325-697-21	WASHER	
107	4-957-294-11	SPRING (D.T), TENSION	
108	3-069-092-01	SPRING (RACK DISENGAGEMENT)	
109	4-957-291-11	LEVER (RACK RELEASE)	
110	4-957-868-11	SCREW (+PTPWH 2.6X20)	
111	3-066-708-01	SCREW (+PTPWH 2.6X10)	
112	3-051-061-01	PULLEY (MOTOR)	
113	3-051-076-01	BELT (RM)	
* 114	4-957-278-01	BEARING (ROTARY A)	
115	X-4947-960-1	ROLLER ASSY	
116	A-6062-505-D	TABLE (LOADING) ASSY	
117	A-6062-388-A	TABLE ASSY	
118	1-757-751-11	CABLE, FLEXIBLE FLAT (FCS-005)	
* 119	A-6065-727-A	SE-123 BOARD, COMPLETE	
121	3-941-343-21	TAPE (A)	
M951	1-541-632-12	MOTOR, DC (TURN TABLE)	

8-1-4. CHASSIS ASSEMBLY


154
165
165
166
154
not supplied
154
164
171
172
165
167
154
171
172
181
169
173
162
163
154
not
supplied
154
174
172
171
182
157
159
161
158
156
160
179
154
155
177
178
153
183
M851
152
not supplied
151

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
151	4-944-490-01	BELT (TIMING)	
152	X-3951-493-1	ASSY, PULLEY	
* 153	A-6065-728-A	LM-64 BOARD, COMPLETE	
154	3-970-608-11	SUMITITE (B3), +BV	
* 155	4-951-619-01	CUSHION (A)	
156	4-962-087-01	SPRING (S), TENSION	
157	3-061-963-01	LEVER, SET	
158	4-934-375-01	GEAR (LOADING B)	
159	4-957-303-01	GEAR (LOADING C)	
160	3-061-962-01	LEVER, LOCK	
161	4-957-281-11	SPRING (LOCK LEVER)	
162	X-3950-723-1	BRACKET (GEAR) ASSY	
163	1-466-996-21	ENCODER, ROTARY (LOADING)	
164	4-957-288-01	GEAR (MAIN)	
165	4-957-283-11	WASHER (5), STOPPER	
166	4-957-287-01	GEAR (REV)	
167	4-957-286-11	GEAR (U/D)	
169	3-056-532-11	PULLEY, CHUCKING	
171	4-981-923-01	SCREW (M), STEP	
172	3-053-847-11	INSULATOR	
173	1-823-280-11	CABLE, FLEXIBLE FLAT (FOM-001)	
174	1-823-281-11	CABLE, FLEXIBLE FLAT (FMM-040)	
* 177	4-981-731-01	CUSHION (U/D)	
* 178	4-981-731-11	CUSHION (U/D)	
179	3-066-138-01	HOLDER, BU	
⚠181	8-820-144-06	OPTICAL PICK-UP KHM-240AAA/J1RP	
182	7-685-648-79	SCREW (M3X12), TAPPING	
183	1-961-112-11	HARNESS, BOARD IN (LE-054)	
M851	A-4660-977-A	MOTOR ASSY, LOADING	

8-2. ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- Not all of the parts for POWER BLOCK (MPN4801) is listed.
- Items marked “*” are not stocked since they are seldom required for routine service.
  Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA. . : μA. . uPA. . : μPA. .
  uPB. . : μPB. . uPC. . : μPC. .
  uPD. . : μPD. .
- CAPACITORS
  uF: μF
- COILS
  uH: μH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiquens pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
*	A-6065-730-A	AV-60 BOARD, COMPLETE			
		**********************			
					(Ref.No. 1,000 Series)
		< CAPACITOR >			
C101	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C102	1-126-933-11	ELECT	100uF	20%	16V
C103	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C104	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C105	1-126-933-11	ELECT	100uF	20%	16V
C106	1-126-933-11	ELECT	100uF	20%	16V
C107	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C109	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C110	1-126-947-11	ELECT	47uF	20%	16V
C112	1-107-725-11	CERAMIC CHIP	0.1uF	10%	16V
C113	1-124-234-00	ELECT	22uF	20%	16V
C115	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C116	1-126-933-11	ELECT	100uF	20%	16V
C117	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C118	1-126-947-11	ELECT	47uF	20%	16V
C119	1-107-725-11	CERAMIC CHIP	0.1uF	10%	16V
C120	1-107-725-11	CERAMIC CHIP	0.1uF	10%	16V
C121	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C123	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C124	1-126-933-11	ELECT	100uF	20%	16V
C201	1-126-947-11	ELECT	47uF	20%	16V
C202	1-115-466-91	ELECT	1000uF	20%	16V
C203	1-107-725-11	CERAMIC CHIP	0.1uF	10%	16V
C204	1-107-725-11	CERAMIC CHIP	0.1uF	10%	16V
C205	1-126-924-11	ELECT	330uF	20%	6.3V
C207	1-126-960-11	ELECT	1uF	20%	50V
C208	1-126-960-11	ELECT	1uF	20%	50V
C209	1-126-960-11	ELECT	1uF	20%	50V
C210	1-126-933-11	ELECT	100uF	20%	16V
C211	1-126-933-11	ELECT	100uF	20%	16V
C212	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C214	1-126-947-11	ELECT	47uF	20%	16V
C215	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C216	1-113-503-11	CERAMIC CHIP	0.0039uF	5%	25V
C217	1-113-503-11	CERAMIC CHIP	0.0039uF	5%	25V
C218	1-113-503-11	CERAMIC CHIP	0.0039uF	5%	25V
C219	1-113-503-11	CERAMIC CHIP	0.0039uF	5%	25V
C220	1-113-503-11	CERAMIC CHIP	0.0039uF	5%	25V
C221	1-113-503-11	CERAMIC CHIP	0.0039uF	5%	25V
C222	1-113-503-11	CERAMIC CHIP	0.0039uF	5%	25V
C223	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C224	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C225	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C226	1-163-017-00	CERAMIC CHIP	0.0047uF	10%	50V
C227	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C228	1-163-017-00	CERAMIC CHIP	0.0047uF	10%	50V
C229	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C230	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C231	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C232	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C233	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C234	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C235	1-163-143-00	CERAMIC CHIP	0.0012uF	5%	50V
C236	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C237	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C238	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C239	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C240	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C241	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C242	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C243	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C244	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C245	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C246	1-163-143-00	CERAMIC CHIP	0.0012uF	5%	50V
C247	1-126-947-11	ELECT	47uF	20%	16V
C248	1-126-947-11	ELECT	47uF	20%	16V
C249	1-126-947-11	ELECT	47uF	20%	16V
C250	1-126-947-11	ELECT	47uF	20%	16V
C251	1-126-947-11	ELECT	47uF	20%	16V
C252	1-126-947-11	ELECT	47uF	20%	16V
C253	1-126-947-11	ELECT	47uF	20%	16V
C254	1-126-947-11	ELECT	47uF	20%	16V
C255	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C256	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C257	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C258	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C259	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C260	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C261	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C262	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V

Ref. No.	Part No.	Description	Remark
C269	1-126-947-11	ELECT 47uF 20%	16V
C276	1-126-947-11	ELECT 47uF 20%	16V
C277	1-126-947-11	ELECT 47uF 20%	16V
C279	1-126-964-11	ELECT 10uF 20%	50V
C280	1-126-964-11	ELECT 10uF 20%	50V
C283	1-163-021-91	CERAMIC CHIP 0.01uF 10%	50V
C284	1-163-243-11	CERAMIC CHIP 47PF 5%	50V
C285	1-163-243-11	CERAMIC CHIP 47PF 5%	50V
C288	1-163-251-11	CERAMIC CHIP 100PF 5%	50V
C289	1-163-251-11	CERAMIC CHIP 100PF 5%	50V
C290	1-126-934-11	ELECT 220uF 20%	16V
C291	1-126-934-11	ELECT 220uF 20%	16V
C292	1-163-021-91	CERAMIC CHIP 0.01uF 10%	50V
		< CONNECTOR >	
CN101	1-568-951-11	PIN, CONNECTOR 2P	
CN102	1-785-695-11	CONNECTOR, FFC/FPC 13P	
* CN103	1-568-938-11	PIN, CONNECTOR 11P	
CN104	1-506-494-11	PIN, CONNECTOR 15P	
CN105	1-506-488-11	PIN, CONNECTOR 9P	
CN201	1-815-880-11	CONNECTOR, FPC/FFC 27P	
		< DIODE >	
D101	8-719-988-61	DIODE 1SS355TE-17	
D102	8-719-071-15	DIODE HZM6.8ZWA1TL	
D103	8-719-071-15	DIODE HZM6.8ZWA1TL	
D104	8-719-071-15	DIODE HZM6.8ZWA1TL	
D105	8-719-071-15	DIODE HZM6.8ZWA1TL	
D201	8-719-914-43	DIODE DAN202K-T-146	
D202	8-719-988-61	DIODE 1SS355TE-17	
D203	8-719-988-61	DIODE 1SS355TE-17	
D204	8-719-988-61	DIODE 1SS355TE-17	
		< FERRITE BEAD >	
FB101	1-469-324-21	FERRITE 0uH	
FB102	1-469-324-21	FERRITE 0uH	
FB103	1-469-324-21	FERRITE 0uH	
FB104	1-469-324-21	FERRITE 0uH	
FB105	1-469-324-21	FERRITE 0uH	
FB106	1-414-553-11	FERRITE 0uH	
FB107	1-469-324-21	FERRITE 0uH	
FB201	1-414-553-11	FERRITE 0uH	
FB202	1-414-553-11	FERRITE 0uH	
		< IC >	
IC101	8-759-667-17	IC L79M05TLL-SONY-TL	
IC102	8-759-832-05	IC BA18BC0FP-E2	
IC103	6-701-078-01	IC MM1540DFBE	
IC201	8-759-052-52	IC NJM78M05DL1A-TE1	
IC202	8-759-909-71	IC BA4558F-E2	
IC203	8-759-909-71	IC BA4558F-E2	
IC204	8-759-909-71	IC BA4558F-E2	
IC205	8-749-017-80	IC GP1FA551TZ (DIGITAL OUT-OPTICAL)	
IC206	8-759-909-71	IC BA4558F-E2	
IC207	8-759-369-74	IC NJM4556AM-TE2	
		< JACK >	
J102	1-815-425-11	TERMINAL, S (2P.V) (S VIDEO OUT)	
J103	1-815-361-11	JACK, PIN 3P (COMPONENT VIDEO OUT)	
J104	1-764-188-21	JACK (SMALL TYPE) (DIA. 3.5) (MEGA CONTROL)	
J105	1-815-363-11	JACK, PIN (6P) (LINE OUT)	
J201	1-793-446-21	JACK, PIN 1P (DIGITAL OUT-COAXIAL)	
J202	1-793-484-11	JACK, PIN 2P (AUDIO IN)	
J203	1-793-482-11	JACK, PIN 6P (5.1CH OUTPUT)	
		< JUMPER RESISTOR >	
JR100	1-216-295-91	SHORT 0	
JR101	1-216-295-91	SHORT 0	
JR102	1-216-295-91	SHORT 0	
JR103	1-216-295-91	SHORT 0	
JR104	1-216-295-91	SHORT 0	
JR105	1-216-295-91	SHORT 0	
JR106	1-216-295-91	SHORT 0	
JR108	1-216-295-91	SHORT 0	
JR118	1-216-295-91	SHORT 0	
JR132	1-216-295-91	SHORT 0	
		< COIL >	
L101	1-412-064-11	INDUCTOR 100uH	
L102	1-414-930-21	INDUCTOR 2.2uH	
L103	1-412-525-31	INDUCTOR 10uH	
		< IC LINK >	
⚠PS101	1-576-509-21	LINK, IC (1.0A)	
⚠PS102	1-576-509-21	LINK, IC (1.0A)	
		< TRANSISTOR >	
Q102	8-729-421-19	TRANSISTOR UN2213-TX	
Q103	8-729-424-08	TRANSISTOR UN2111-TX	
Q104	8-729-046-97	TRANSISTOR 2SD1938 (F)-T (TX).SO	
Q201	8-729-424-02	TRANSISTOR 2SB709A-QRS-TX	
Q202	8-729-421-19	TRANSISTOR UN2213-TX	
Q203	8-729-421-19	TRANSISTOR UN2213-TX	
Q204	8-729-421-19	TRANSISTOR UN2213-TX	
Q205	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L	
Q206	8-729-049-31	TRANSISTOR 2SB710A-RTX	
Q207	8-729-027-53	TRANSISTOR DTC124TKA-T146	
Q208	8-729-027-53	TRANSISTOR DTC124TKA-T146	
Q209	8-729-027-53	TRANSISTOR DTC124TKA-T146	
Q210	8-729-424-02	TRANSISTOR 2SB709A-QRS-TX	
Q211	8-729-424-02	TRANSISTOR 2SB709A-QRS-TX	
Q212	8-729-424-02	TRANSISTOR 2SB709A-QRS-TX	
Q213	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L	
Q214	8-729-046-97	TRANSISTOR 2SD1938 (F)-T (TX).SO	
Q215	8-729-046-97	TRANSISTOR 2SD1938 (F)-T (TX).SO	
Q216	8-729-046-97	TRANSISTOR 2SD1938 (F)-T (TX).SO	
Q217	8-729-046-97	TRANSISTOR 2SD1938 (F)-T (TX).SO	
Q218	8-729-046-97	TRANSISTOR 2SD1938 (F)-T (TX).SO	
Q219	8-729-046-97	TRANSISTOR 2SD1938 (F)-T (TX).SO	
Q220	8-729-046-97	TRANSISTOR 2SD1938 (F)-T (TX).SO	
Q221	8-729-046-97	TRANSISTOR 2SD1938 (F)-T (TX).SO	
Q222	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L	
Q223	8-729-230-49	TRANSISTOR 2SC2712-YG-TE85L	
Q226	8-729-046-97	TRANSISTOR 2SD1938 (F)-T (TX).SO	
Q227	8-729-046-97	TRANSISTOR 2SD1938 (F)-T (TX).SO	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remark
		< RESISTOR >			
R102	1-216-073-91	RES-CHIP	10K	5%	1/10W
R106	1-216-073-91	RES-CHIP	10K	5%	1/10W
R107	1-216-021-00	METAL CHIP	68	5%	1/10W
R108	1-216-021-00	METAL CHIP	68	5%	1/10W
R109	1-216-021-00	METAL CHIP	68	5%	1/10W
R110	1-216-021-00	METAL CHIP	68	5%	1/10W
R111	1-216-021-00	METAL CHIP	68	5%	1/10W
R112	1-216-021-00	METAL CHIP	68	5%	1/10W
R113	1-216-021-00	METAL CHIP	68	5%	1/10W
R114	1-216-021-00	METAL CHIP	68	5%	1/10W
R115	1-216-021-00	METAL CHIP	68	5%	1/10W
R116	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R117	1-216-073-91	RES-CHIP	10K	5%	1/10W
R118	1-216-001-00	METAL CHIP	10	5%	1/10W
R119	1-216-295-91	SHORT	0		
R120	1-216-295-91	SHORT	0		
R121	1-216-295-91	SHORT	0		
R122	1-216-295-91	SHORT	0		
R123	1-216-295-91	SHORT	0		
R124	1-216-295-91	SHORT	0		
R125	1-216-295-91	SHORT	0		
R126	1-216-295-91	SHORT	0		
R127	1-216-295-91	SHORT	0		
R128	1-216-295-91	SHORT	0		
R129	1-216-295-91	SHORT	0		
R151	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R152	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R153	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R154	1-216-295-91	SHORT	0		
R155	1-216-041-00	METAL CHIP	470	5%	1/10W
R156	1-216-073-91	RES-CHIP	10K	5%	1/10W
R157	1-216-105-91	RES-CHIP	220K	5%	1/10W
R158	1-216-073-91	RES-CHIP	10K	5%	1/10W
R159	1-216-097-11	RES-CHIP	100K	5%	1/10W
R160	1-216-073-91	RES-CHIP	10K	5%	1/10W
R161	1-216-073-91	RES-CHIP	10K	5%	1/10W
R162	1-216-073-91	RES-CHIP	10K	5%	1/10W
R163	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R164	1-216-073-91	RES-CHIP	10K	5%	1/10W
R165	1-216-089-91	RES-CHIP	47K	5%	1/10W
R166	1-216-073-91	RES-CHIP	10K	5%	1/10W
R167	1-216-089-91	RES-CHIP	47K	5%	1/10W
R168	1-216-073-91	RES-CHIP	10K	5%	1/10W
R169	1-216-089-91	RES-CHIP	47K	5%	1/10W
R170	1-216-073-91	RES-CHIP	10K	5%	1/10W
R171	1-216-073-91	RES-CHIP	10K	5%	1/10W
R172	1-216-073-91	RES-CHIP	10K	5%	1/10W
R174	1-208-782-11	METAL CHIP	1K	0.5%	1/10W
R175	1-208-782-11	METAL CHIP	1K	0.5%	1/10W
R176	1-208-782-11	METAL CHIP	1K	0.5%	1/10W
R177	1-208-782-11	METAL CHIP	1K	0.5%	1/10W
R178	1-208-782-11	METAL CHIP	1K	0.5%	1/10W
R179	1-208-782-11	METAL CHIP	1K	0.5%	1/10W
R180	1-208-782-11	METAL CHIP	1K	0.5%	1/10W
R181	1-208-782-11	METAL CHIP	1K	0.5%	1/10W
R182	1-216-049-11	RES-CHIP	1K	5%	1/10W
R183	1-216-049-11	RES-CHIP	1K	5%	1/10W
R184	1-216-049-11	RES-CHIP	1K	5%	1/10W
R185	1-216-049-11	RES-CHIP	1K	5%	1/10W
R186	1-208-782-11	METAL CHIP	1K	0.5%	1/10W
R187	1-208-782-11	METAL CHIP	1K	0.5%	1/10W
R188	1-208-782-11	METAL CHIP	1K	0.5%	1/10W
R189	1-208-782-11	METAL CHIP	1K	0.5%	1/10W
R191	1-208-782-11	METAL CHIP	1K	0.5%	1/10W
R192	1-208-782-11	METAL CHIP	1K	0.5%	1/10W
R193	1-208-782-11	METAL CHIP	1K	0.5%	1/10W
R194	1-208-782-11	METAL CHIP	1K	0.5%	1/10W
R195	1-208-782-11	METAL CHIP	1K	0.5%	1/10W
R196	1-208-782-11	METAL CHIP	1K	0.5%	1/10W
R197	1-216-049-11	RES-CHIP	1K	5%	1/10W
R198	1-216-049-11	RES-CHIP	1K	5%	1/10W
R200	1-216-049-11	RES-CHIP	1K	5%	1/10W
R201	1-216-049-11	RES-CHIP	1K	5%	1/10W
R202	1-208-782-11	METAL CHIP	1K	0.5%	1/10W
R203	1-208-782-11	METAL CHIP	1K	0.5%	1/10W
R204	1-216-049-11	RES-CHIP	1K	5%	1/10W
R205	1-216-049-11	RES-CHIP	1K	5%	1/10W
R206	1-216-660-11	METAL CHIP	2.4K	0.5%	1/10W
R207	1-216-660-11	METAL CHIP	2.4K	0.5%	1/10W
R208	1-216-058-00	RES-CHIP	2.4K	5%	1/10W
R209	1-216-660-11	METAL CHIP	2.4K	0.5%	1/10W
R210	1-216-660-11	METAL CHIP	2.4K	0.5%	1/10W
R211	1-216-660-11	METAL CHIP	2.4K	0.5%	1/10W
R212	1-216-058-00	RES-CHIP	2.4K	5%	1/10W
R213	1-216-063-91	RES-CHIP	3.9K	5%	1/10W
R214	1-216-045-00	METAL CHIP	680	5%	1/10W
R215	1-216-045-00	METAL CHIP	680	5%	1/10W
R216	1-216-045-00	METAL CHIP	680	5%	1/10W
R217	1-216-045-00	METAL CHIP	680	5%	1/10W
R218	1-216-045-00	METAL CHIP	680	5%	1/10W
R219	1-216-045-00	METAL CHIP	680	5%	1/10W
R220	1-216-045-00	METAL CHIP	680	5%	1/10W
R221	1-216-045-00	METAL CHIP	680	5%	1/10W
R222	1-216-045-00	METAL CHIP	680	5%	1/10W
R223	1-216-045-00	METAL CHIP	680	5%	1/10W
R224	1-216-045-00	METAL CHIP	680	5%	1/10W
R225	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R226	1-216-660-11	METAL CHIP	2.4K	0.5%	1/10W
R227	1-216-045-00	METAL CHIP	680	5%	1/10W
R228	1-216-660-11	METAL CHIP	2.4K	0.5%	1/10W
R229	1-216-045-00	METAL CHIP	680	5%	1/10W
R230	1-216-058-00	RES-CHIP	2.4K	5%	1/10W
R231	1-216-045-00	METAL CHIP	680	5%	1/10W
R232	1-216-660-11	METAL CHIP	2.4K	0.5%	1/10W
R233	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R234	1-216-660-11	METAL CHIP	2.4K	0.5%	1/10W
R235	1-216-660-11	METAL CHIP	2.4K	0.5%	1/10W
R236	1-216-058-00	RES-CHIP	2.4K	5%	1/10W
R237	1-216-063-91	RES-CHIP	3.9K	5%	1/10W
R238	1-216-049-11	RES-CHIP	1K	5%	1/10W
R239	1-216-041-00	METAL CHIP	470	5%	1/10W
R240	1-216-041-00	METAL CHIP	470	5%	1/10W
R241	1-216-041-00	METAL CHIP	470	5%	1/10W
R242	1-216-041-00	METAL CHIP	470	5%	1/10W
R243	1-216-041-00	METAL CHIP	470	5%	1/10W
R244	1-216-041-00	METAL CHIP	470	5%	1/10W
R245	1-216-041-00	METAL CHIP	470	5%	1/10W
R246	1-216-041-00	METAL CHIP	470	5%	1/10W

Ref. No.	Part No.	Description			Remark
R247	1-216-089-91	RES-CHIP	47K	5%	1/10W
R248	1-216-089-91	RES-CHIP	47K	5%	1/10W
R249	1-216-089-91	RES-CHIP	47K	5%	1/10W
R250	1-216-089-91	RES-CHIP	47K	5%	1/10W
R251	1-216-089-91	RES-CHIP	47K	5%	1/10W
R252	1-216-089-91	RES-CHIP	47K	5%	1/10W
R253	1-216-089-91	RES-CHIP	47K	5%	1/10W
R254	1-216-089-91	RES-CHIP	47K	5%	1/10W
R255	1-216-049-11	RES-CHIP	1K	5%	1/10W
R256	1-216-049-11	RES-CHIP	1K	5%	1/10W
R257	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R258	1-216-033-00	METAL CHIP	220	5%	1/10W
R259	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R260	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R261	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R262	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R263	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R264	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R265	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R266	1-216-021-00	METAL CHIP	68	5%	1/10W
R267	1-216-295-91	SHORT	0		
R268	1-216-073-91	RES-CHIP	10K	5%	1/10W
R269	1-216-097-11	RES-CHIP	100K	5%	1/10W
R270	1-216-097-11	RES-CHIP	100K	5%	1/10W
R271	1-216-097-11	RES-CHIP	100K	5%	1/10W
R272	1-216-295-91	SHORT	0		
R273	1-216-049-11	RES-CHIP	1K	5%	1/10W
R274	1-216-049-11	RES-CHIP	1K	5%	1/10W
R275	1-216-085-91	RES-CHIP	33K	5%	1/10W
R276	1-216-085-91	RES-CHIP	33K	5%	1/10W
R277	1-216-089-91	RES-CHIP	47K	5%	1/10W
R278	1-216-089-91	RES-CHIP	47K	5%	1/10W
R279	1-216-085-91	RES-CHIP	33K	5%	1/10W
R280	1-216-085-91	RES-CHIP	33K	5%	1/10W
R283	1-216-041-00	METAL CHIP	470	5%	1/10W
R284	1-216-041-00	METAL CHIP	470	5%	1/10W
R285	1-216-041-00	METAL CHIP	470	5%	1/10W
R286	1-216-041-00	METAL CHIP	470	5%	1/10W
R289	1-216-085-91	RES-CHIP	33K	5%	1/10W
R290	1-216-085-91	RES-CHIP	33K	5%	1/10W
R291	1-216-105-91	RES-CHIP	220K	5%	1/10W
R292	1-216-105-91	RES-CHIP	220K	5%	1/10W
R295	1-216-295-91	SHORT	0		
R296	1-216-295-91	SHORT	0		
R297	1-216-295-91	SHORT	0		
R298	1-216-295-91	SHORT	0		
R299	1-216-295-91	SHORT	0		
R300	1-216-295-91	SHORT	0		
R301	1-216-073-91	RES-CHIP	10K	5%	1/10W
R302	1-216-073-91	RES-CHIP	10K	5%	1/10W
R303	1-216-025-11	RES-CHIP	100	5%	1/10W
R304	1-216-025-11	RES-CHIP	100	5%	1/10W
R305	1-216-037-00	METAL CHIP	330	5%	1/10W
R306	1-216-037-00	METAL CHIP	330	5%	1/10W
R307	1-216-041-00	METAL CHIP	470	5%	1/10W
R308	1-216-041-00	METAL CHIP	470	5%	1/10W
R309	1-216-041-00	METAL CHIP	470	5%	1/10W
R310	1-216-041-00	METAL CHIP	470	5%	1/10W
R311	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R312	1-216-061-91	RES-CHIP	3.3K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R316	1-216-295-91	SHORT	0		
R317	1-216-295-91	SHORT	0		
R318	1-216-295-91	SHORT	0		
R319	1-216-295-91	SHORT	0		
R320	1-216-295-91	SHORT	0		
R321	1-216-295-91	SHORT	0		
R323	1-216-295-91	SHORT	0		
R324	1-216-295-91	SHORT	0		
		< RELAY >			
RY201	1-515-622-11	RELAY			
RY202	1-515-622-11	RELAY			

---

* A-6065-731-A CN-143 BOARD, COMPLETE

****

(Ref.No. 1,000 Series)

Ref. No.	Part No.	Description			Remark
		< CAPACITOR >			
C351	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C352	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C353	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C355	1-124-248-00	ELECT	22uF	20%	35V
C356	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C357	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C358	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
		< CONNECTOR >			
* CN351	1-770-639-11	CONNECTOR, FFC/FPC 8P			
CN352	1-770-644-11	CONNECTOR, FFC/FPC 14P			
CN353	1-506-487-11	PIN, CONNECTOR 8P			
CN354	1-506-485-11	PIN, CONNECTOR 6P			
CN355	1-785-694-11	CONNECTOR, FFC/FPC 7P			
		< DIODE >			
D351	8-719-069-54	DIODE UDZSTE-175.1B			
		< TERMINAL >			
* ET351	1-537-738-21	TERMINAL, EARTH			
		< FERRITE BEAD >			
FB351	1-469-324-21	FERRITE	0uH		
FB352	1-469-324-21	FERRITE	0uH		
FB353	1-216-295-91	SHORT	0		
FB354	1-216-295-91	SHORT	0		
FB355	1-216-295-91	SHORT	0		
FB356	1-216-295-91	SHORT	0		
FB357	1-216-295-91	SHORT	0		
FB358	1-216-295-91	SHORT	0		
FB359	1-216-295-91	SHORT	0		
FB360	1-216-295-91	SHORT	0		
		< IC >			
IC351	8-759-598-69	IC BA6956AN			
		< COIL >			
L351	1-414-183-41	INDUCTOR	10uH		

Ref. No.	Part No.	Description	Remark
		< TRANSISTOR >	
Q351	8-729-026-49	TRANSISTOR 2SA1037AK-T146-QR	
		< RESISTOR >	
R352	1-216-025-11	RES-CHIP 100 5% 1/10W	
R353	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R354	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R355	1-216-061-91	RES-CHIP 3.3K 5% 1/10W	
R356	1-216-061-91	RES-CHIP 3.3K 5% 1/10W	
R357	1-216-025-11	RES-CHIP 100 5% 1/10W	
R358	1-216-295-91	SHORT 0	
R359	1-216-295-91	SHORT 0	
*	A-6065-724-A	FL-124 BOARD, COMPLETE ********************** (Ref.No. 3,000 Series)	
		< CONNECTOR >	
CN601	1-815-569-11	CONNECTOR, FFC/FPC 7P	
CN603	1-815-467-11	CONNECTOR, FFC/FPC 5P	
		< DIODE >	
D601	8-719-056-06	DIODE SLR-342DCT31 (MEGA CONTROL)	
		< RESISTOR >	
R601	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	
R602	1-216-063-91	RES-CHIP 3.9K 5% 1/10W	
R603	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R604	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	
R605	1-216-047-91	RES-CHIP 820 5% 1/10W	
R606	1-216-081-00	METAL CHIP 22K 5% 1/10W	
		< SWITCH >	
S601	1-771-349-21	SWITCH, KEYBOARD (EXCHANGE)	
S602	1-771-349-21	SWITCH, KEYBOARD (DISC SKIP)	
S603	1-771-349-21	SWITCH, KEYBOARD (DISPLAY)	
S604	1-771-349-21	SWITCH, KEYBOARD (⏏)	
S605	1-771-349-21	SWITCH, KEYBOARD (▶▶I)	
S606	1-771-349-21	SWITCH, KEYBOARD (I◀◀)	
S607	1-771-349-21	SWITCH, KEYBOARD (MEGA CONTROL)	
*	A-6065-725-A	FR-180 BOARD, COMPLETE ********************** (Ref.No. 3,000 Series)	
		< CAPACITOR >	
C702	1-163-021-91	CERAMIC CHIP 0.01uF 10% 50V	
C703	1-124-589-11	ELECT 47uF 20% 16V	
		< CONNECTOR >	
CN701	1-794-473-11	CONNECTOR, FPC/FFC 9P	
CN702	1-815-467-11	CONNECTOR, FFC/FPC 5P	
		< DIODE >	
D701	8-719-056-06	DIODE SLR-342DCT31 (SURROUND)	
D702	8-719-056-06	DIODE SLR-342DCT31 (DISC SELECT-1)	
D703	8-719-056-06	DIODE SLR-342DCT31 (DISC SELECT-2)	
D704	8-719-056-06	DIODE SLR-342DCT31 (DISC SELECT-3)	
D705	8-719-056-06	DIODE SLR-342DCT31 (DISC SELECT-4)	
D706	8-719-056-06	DIODE SLR-342DCT31 (DISC SELECT-5)	
D707	8-719-056-07	DIODE SLR-342MCT31 (POWER ON)	
D708	8-719-059-98	DIODE SLR-342VCT31 (STANDBY)	
D709	8-719-056-06	DIODE SLR-342DCT31 (BNR)	
		< IC >	
IC702	8-749-011-05	IC GP1U28X	
		< JUMPER RESISTOR >	
JR701	1-216-295-91	SHORT 0	
		< TRANSISTOR >	
Q701	8-729-424-08	TRANSISTOR UN2111-TX	
		< RESISTOR >	
R701	1-216-047-91	RES-CHIP 820 5% 1/10W	
R702	1-216-047-91	RES-CHIP 820 5% 1/10W	
R703	1-216-047-91	RES-CHIP 820 5% 1/10W	
R705	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R706	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R707	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	
R708	1-216-047-91	RES-CHIP 820 5% 1/10W	
R710	1-216-063-91	RES-CHIP 3.9K 5% 1/10W	
R711	1-216-047-91	RES-CHIP 820 5% 1/10W	
R712	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R714	1-216-047-91	RES-CHIP 820 5% 1/10W	
R716	1-216-047-91	RES-CHIP 820 5% 1/10W	
R718	1-216-047-91	RES-CHIP 820 5% 1/10W	
R719	1-216-043-91	RES-CHIP 560 5% 1/10W	
R722	1-216-017-91	RES-CHIP 47 5% 1/10W	
		< SWITCH >	
S701	1-771-349-21	SWITCH, KEYBOARD (DISC SELECT-1)	
S702	1-771-349-21	SWITCH, KEYBOARD (DISC SELECT-2)	
S703	1-771-349-21	SWITCH, KEYBOARD (DISC SELECT-3)	
S704	1-771-349-21	SWITCH, KEYBOARD (DISC SELECT-4)	
S705	1-771-349-21	SWITCH, KEYBOARD (DISC SELECT-5)	
S706	1-771-349-21	SWITCH, KEYBOARD (SURROUND)	
S707	1-771-349-21	SWITCH, KEYBOARD (BNR)	
*	A-6065-733-A	HP-133 BOARD, COMPLETE ********************** (Ref.No. 3,000 Series)	
		< CAPACITOR >	
C751	1-163-011-11	CERAMIC CHIP 0.0015uF 10% 50V	
C752	1-163-011-11	CERAMIC CHIP 0.0015uF 10% 50V	
		< CONNECTOR >	
CN751	1-506-481-11	PIN, CONNECTOR 2P	
		< DIODE >	
D751	8-719-071-15	DIODE HZM6.8ZWA1TL	
D752	8-719-071-15	DIODE HZM6.8ZWA1TL	
		< JACK >	
J751	1-785-505-31	JACK, LARGE TYPE (PHONES)	

Ref. No.	Part No.	Description			Remark
		< JUMPER RESISTOR >			
JR750	1-216-295-91	SHORT	0		
JR751	1-216-295-91	SHORT	0		
		< VARIABLE RESISTOR >			
RV751	1-225-738-21	RES, VAR, CARBON 500/500 (LEVEL)			

Ref. No.	Part No.	Description			Remark
*	A-6065-732-A	IF-85 BOARD, COMPLETE ********************			
					(Ref.No. 1,000 Series)
	3-066-136-01	HOLDER, FL (U)			
	3-071-106-01	HOLDER, FL (L)			
		< BUZZER >			
BZ401	1-529-986-11	BUZZER, VOLTAGE			
		< CAPACITOR >			
C401	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C402	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C403	1-128-131-11	ELECT	22uF	20%	50V
C404	1-137-150-11	FILM	0.01uF	5%	100V
C405	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C406	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C407	1-128-131-11	ELECT	22uF	20%	50V
C408	1-128-131-11	ELECT	22uF	20%	50V
C409	1-128-131-11	ELECT	22uF	20%	50V
C410	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C411	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C412	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C420	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C421	1-163-009-91	CERAMIC CHIP	0.001uF	10%	50V
C427	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C428	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C432	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C437	1-126-157-11	ELECT	10uF	20%	16V
		< CONNECTOR >			
CN401	1-506-490-21	PIN, CONNECTOR 11P			
CN402	1-815-569-11	CONNECTOR, FFC/FPC 7P			
CN403	1-794-473-11	CONNECTOR, FPC/FFC 9P			
CN404	1-506-487-11	PIN, CONNECTOR 8P			
CN405	1-815-468-11	PIN, CONNECTOR (PC BOARD)			
CN406	1-815-467-11	CONNECTOR, FFC/FPC 5P			
CN407	1-506-486-11	PIN, CONNECTOR 7P			
		< DIODE >			
D401	8-719-041-97	DIODE MA113- (TX)			
D403	8-719-041-97	DIODE MA113- (TX)			
D404	8-719-041-97	DIODE MA113- (TX)			
D405	8-719-041-97	DIODE MA113- (TX)			
D406	8-719-042-70	DIODE MA8300-L-TX			
D407	8-719-422-76	DIODE MA8075-M-TX			
		< IC >			
IC402	8-759-525-43	IC TC74HCT08AF (EL)			
IC403	8-759-366-45	IC NJU3713G (TE2)			
IC404	6-800-655-01	IC TMP86CK74F-3FR1			

Ref. No.	Part No.	Description			Remark
IC405	8-759-542-91	IC S-80840ANUP-ED4-T2			
		< JUMPER RESISTOR >			
JR401	1-216-295-91	SHORT	0		
JR402	1-216-295-91	SHORT	0		
JR403	1-216-295-91	SHORT	0		
JR404	1-216-295-91	SHORT	0		
JR405	1-216-295-91	SHORT	0		
JR406	1-216-295-91	SHORT	0		
JR407	1-216-295-91	SHORT	0		
		< COIL >			
L401	1-400-096-21	INDUCTOR	47uH		
		< FLUORESCENT INDICATOR >			
ND401	1-518-750-11	VACUUM FLUORESCENT DISPLAYS			
		< TRANSISTOR >			
Q401	8-729-808-02	TRANSISTOR	2SD1622-T-TD		
Q402	8-729-808-02	TRANSISTOR	2SD1622-T-TD		
Q403	8-729-804-41	TRANSISTOR	2SB1122-ST-TD		
Q406	8-729-903-46	TRANSISTOR	2SB1132-T100-QR		
Q407	8-729-421-22	TRANSISTOR	UN2211-TX		
		< RESISTOR >			
R401	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R402	1-216-025-11	RES-CHIP	100	5%	1/10W
R403	1-216-025-11	RES-CHIP	100	5%	1/10W
R404	1-216-025-11	RES-CHIP	100	5%	1/10W
R407	1-216-013-00	METAL CHIP	33	5%	1/10W
R408	1-216-027-00	METAL CHIP	120	5%	1/10W
R409	1-216-073-91	RES-CHIP	10K	5%	1/10W
R411	1-216-073-91	RES-CHIP	10K	5%	1/10W
R412	1-216-073-91	RES-CHIP	10K	5%	1/10W
R413	1-216-063-91	RES-CHIP	3.9K	5%	1/10W
R414	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R415	1-216-073-91	RES-CHIP	10K	5%	1/10W
R416	1-216-097-11	RES-CHIP	100K	5%	1/10W
R417	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R418	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R419	1-216-049-11	RES-CHIP	1K	5%	1/10W
R420	1-216-025-11	RES-CHIP	100	5%	1/10W
R421	1-216-097-11	RES-CHIP	100K	5%	1/10W
R422	1-216-073-91	RES-CHIP	10K	5%	1/10W
R423	1-216-073-91	RES-CHIP	10K	5%	1/10W
R424	1-216-073-91	RES-CHIP	10K	5%	1/10W
R425	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R426	1-216-063-91	RES-CHIP	3.9K	5%	1/10W
R427	1-216-073-91	RES-CHIP	10K	5%	1/10W
R430	1-216-073-91	RES-CHIP	10K	5%	1/10W
R431	1-216-073-91	RES-CHIP	10K	5%	1/10W
R432	1-216-073-91	RES-CHIP	10K	5%	1/10W
R433	1-216-073-91	RES-CHIP	10K	5%	1/10W
R437	1-216-073-91	RES-CHIP	10K	5%	1/10W
R440	1-216-073-91	RES-CHIP	10K	5%	1/10W
R441	1-216-073-91	RES-CHIP	10K	5%	1/10W
R443	1-216-073-91	RES-CHIP	10K	5%	1/10W
R444	1-216-025-11	RES-CHIP	100	5%	1/10W
R446	1-216-097-11	RES-CHIP	100K	5%	1/10W
R447	1-216-073-91	RES-CHIP	10K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R448	1-216-097-11	RES-CHIP	100K	5%	1/10W
R449	1-216-073-91	RES-CHIP	10K	5%	1/10W
R450	1-216-097-11	RES-CHIP	100K	5%	1/10W
R451	1-216-073-91	RES-CHIP	10K	5%	1/10W
R455	1-216-073-91	RES-CHIP	10K	5%	1/10W
R456	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R457	1-216-049-11	RES-CHIP	1K	5%	1/10W
		< SWITCH >			
S401	1-771-349-21	SWITCH, KEYBOARD (■)			
S402	1-771-349-21	SWITCH, KEYBOARD (❚❚)			
S403	1-771-349-21	SWITCH, KEYBOARD (▷)			
		< TRANSFORMER >			
T401	1-437-473-11	TRANSFORMER, D.C-D.C CONVERTER			
		< VIBRATOR >			
X401	1-781-472-21	VIBRATOR, CERAMIC (8MHz)			
*	A-6065-728-A	LM-64 BOARD, COMPLETE			
		***********************			
					(Ref.No. 1,000 Series)
		< HARNESS >			
B851	1-961-112-11	HARNESS (LE-054)			
*	A-6065-729-A	MB-101 BOARD, COMPLETE			
		************************			
					(Ref.No. 2,000 Series)
		< CAPACITOR >			
C102	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C103	1-126-209-11	ELECT CHIP	100uF	20%	4V
C104	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C105	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C106	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C107	1-164-185-11	CERAMIC CHIP	13PF	5%	50V
C108	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C109	1-126-209-11	ELECT CHIP	100uF	20%	4V
C111	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C113	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C115	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C118	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C120	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C121	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C124	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C125	1-126-607-11	ELECT CHIP	47uF	20%	4V
C126	1-126-204-11	ELECT CHIP	47uF	20%	16V
C127	1-126-246-11	ELECT CHIP	220uF	20%	4V
C128	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C201	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C202	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C203	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C204	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C210	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C211	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C212	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C213	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C214	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C215	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C216	1-164-230-11	CERAMIC CHIP	220PF	5%	50V
C218	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C219	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C220	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C221	1-124-779-00	ELECT CHIP	10uF	20%	16V
C225	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C226	1-164-230-11	CERAMIC CHIP	220PF	5%	50V
C228	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C229	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C230	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C232	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C233	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C234	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C235	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C236	1-164-739-11	CERAMIC CHIP	560PF	5%	50V
C238	1-124-779-00	ELECT CHIP	10uF	20%	16V
C240	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C241	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C242	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C243	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C244	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C245	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C246	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C247	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C248	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C249	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C250	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C251	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C252	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C253	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C254	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C255	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C256	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C257	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C258	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C259	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C260	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C261	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C262	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C263	1-124-779-00	ELECT CHIP	10uF	20%	16V
C264	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C265	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C266	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C270	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C271	1-126-204-11	ELECT CHIP	47uF	20%	16V
C272	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C273	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C301	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C302	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C303	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C304	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C305	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C307	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C308	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C309	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C310	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C311	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C312	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V

Ref. No.	Part No.	Description			Remark
C313	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C315	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C316	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C317	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C318	1-110-563-11	CERAMIC CHIP	0.068uF	10%	16V
C319	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C320	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C321	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C322	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C323	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C324	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C325	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C326	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C327	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C328	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C329	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C330	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C333	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C334	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C335	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C336	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C337	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C338	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C339	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C340	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C341	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C342	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C343	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C344	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C345	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C346	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C347	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C348	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C418	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C419	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C420	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C421	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C422	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C423	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C424	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C425	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C426	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C428	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C501	1-165-871-21	ELECT CHIP	22uF	20%	6.3V
C502	1-126-193-11	ELECT	1uF	20%	50V
C503	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C504	1-124-779-00	ELECT CHIP	10uF	20%	16V
C506	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C507	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C508	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C510	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C511	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C512	1-124-779-00	ELECT CHIP	10uF	20%	16V
C513	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C514	1-126-246-11	ELECT CHIP	220uF	20%	4V
C515	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C516	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C518	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C519	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C521	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C522	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C523	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C524	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C525	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C526	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C527	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C528	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C529	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C530	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C531	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C532	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C533	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C534	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C535	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C536	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C537	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C538	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C540	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C541	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C542	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C552	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C553	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C554	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C555	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C556	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C601	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C602	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C603	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C604	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C605	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C606	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C607	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C608	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C609	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C610	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C611	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C612	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C613	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C614	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C615	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C616	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C617	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C618	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C619	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C620	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C621	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C622	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C623	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C626	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C629	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C630	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C631	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C632	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C633	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C634	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C635	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C801	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C802	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C803	1-124-779-00	ELECT CHIP	10uF	20%	16V
C804	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V

MB-101

Ref. No.	Part No.	Description			Remark
C805	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C808	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C809	1-126-209-11	ELECT CHIP	100uF	20%	4V
C811	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C812	1-126-209-11	ELECT CHIP	100uF	20%	4V
C813	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C814	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C815	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C816	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C817	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C818	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C819	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C820	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C821	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C822	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C823	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C824	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C825	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C826	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C827	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C828	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C829	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C830	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C831	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C832	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C833	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C834	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C835	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C836	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C837	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C838	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C839	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C840	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C841	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C842	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C843	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C844	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
		< CONNECTOR >			
CN101	1-774-765-11	CONNECTOR, FFC/FPC 8P			
CN102	1-790-669-21	PIN, CONNECTOR (PC BOARD) 9P			
* CN104	1-770-470-21	PIN, CONNECTOR (PC BOARD) 6P			
CN201	1-774-771-11	CONNECTOR, FFC/FPC 14P			
CN203	1-815-507-21	CONNECTOR, FFC/FPC 26P			
CN204	1-779-935-11	CONNECTOR, FFC/FPC 9P			
CN501	1-778-274-11	CONNECTOR, FFC/FPC 13P			
CN601	1-784-326-11	CONNECTOR, FFC/FPC 27P			
		< DIODE >			
D601	8-719-914-44	DIODE	DAP202K-T-146		
D602	8-719-914-44	DIODE	DAP202K-T-146		
D603	8-719-914-44	DIODE	DAP202K-T-146		
		< FERRITE BEAD >			
FB101	1-469-784-11	FERRITE	0uH		
FB103	1-469-784-11	FERRITE	0uH		
FB104	1-469-324-21	FERRITE	0uH		
FB105	1-469-324-21	FERRITE	0uH		

Ref. No.	Part No.	Description		Remark
FB106	1-469-324-21	FERRITE	0uH	
FB107	1-469-324-21	FERRITE	0uH	
FB108	1-469-324-21	FERRITE	0uH	
FB109	1-469-324-21	FERRITE	0uH	
FB110	1-469-324-21	FERRITE	0uH	
FB111	1-469-324-21	FERRITE	0uH	
FB112	1-469-784-11	FERRITE	0uH	
FB601	1-469-784-11	FERRITE	0uH	
FB602	1-469-784-11	FERRITE	0uH	
		< FILTER >		
FL101	1-234-177-21	FILTER, CHIP EMI		
FL102	1-234-177-21	FILTER, CHIP EMI		
FL103	1-234-177-21	FILTER, CHIP EMI		
FL104	1-234-177-21	FILTER, CHIP EMI		
FL105	1-234-177-21	FILTER, CHIP EMI		
FL107	1-233-893-21	FILTER, CHIP EMI		
FL108	1-234-177-21	FILTER, CHIP EMI		
FL201	1-234-177-21	FILTER, CHIP EMI		
FL403	1-234-177-21	FILTER, CHIP EMI		
FL501	1-234-177-21	FILTER, CHIP EMI		
FL502	1-234-177-21	FILTER, CHIP EMI		
FL503	1-234-177-21	FILTER, CHIP EMI		
FL601	1-234-177-21	FILTER, CHIP EMI		
FL602	1-234-177-21	FILTER, CHIP EMI		
FL603	1-234-177-21	FILTER, CHIP EMI		
FL604	1-234-177-21	FILTER, CHIP EMI		
FL801	1-234-177-21	FILTER, CHIP EMI		
FL802	1-234-177-21	FILTER, CHIP EMI		
FL803	1-234-177-21	FILTER, CHIP EMI		
FL804	1-234-177-21	FILTER, CHIP EMI		
FL805	1-234-177-21	FILTER, CHIP EMI		
		< IC >		
IC101	8-759-641-86	IC	BR24C16F-E2	
IC103	8-759-831-81	IC	IMIC6001BTD	
IC104	8-759-829-75	IC	MB91307APFV-G-BND-E1	
IC106	Note			
IC107	Note			
IC201	8-759-828-02	IC	SP3728AC	
IC202	8-759-826-42	IC	FAN8034	
IC301	8-759-599-45	IC	MM1385ENLE	
IC302	8-759-828-01	IC	CXD9635R	
IC303	8-759-825-60	IC	K4F151612D-TL60T	
IC403	6-700-772-01	IC	CXD9667Q	
IC501	8-759-656-53	IC	MM1426CNLE	
IC502	8-752-414-77	IC	CXD1934Q	
IC503	8-759-599-45	IC	MM1385ENLE	
IC504	8-759-826-44	IC	CXD9632Q	
IC507	6-700-098-01	IC	HY57V641620HGT-P-TR-V	
IC601	8-752-414-78	IC	CXD1938R	
IC602	8-759-082-59	IC	TC7W32FU (TE12R)	
IC603	6-700-533-01	IC	CXD9674TN-E2	
IC604	6-701-674-01	IC	CXD9675R-L	
IC801	8-759-588-58	IC	MM1385NNLE	
IC803	8-759-663-74	IC	HY57V161610DTC-7TR	
IC804	8-759-585-52	IC	SN74AHC1GU04DBVR	

Note: Part number has not been determined yet.
It will be noticed later.

Ref. No.	Part No.	Description			Remark
IC806	8-752-407-50	IC CXD2752R			
IC807	6-700-760-01	IC CXD9669R			
		< COIL >			
L201	1-412-031-11	INDUCTOR CHIP	47uH		
L202	1-412-031-11	INDUCTOR CHIP	47uH		
		< TRANSISTOR >			
Q201	8-729-903-46	TRANSISTOR	2SB1132-T100-QR		
Q202	8-729-903-46	TRANSISTOR	2SB1132-T100-QR		
		< RESISTOR >			
R101	1-216-864-11	SHORT	0		
R102	1-216-864-11	SHORT	0		
R103	1-216-864-11	SHORT	0		
R104	1-216-789-11	METAL CHIP	2.2	5%	1/16W
R105	1-216-864-11	SHORT	0		
R106	1-216-817-11	METAL CHIP	470	5%	1/16W
R107	1-216-833-11	METAL CHIP	10K	5%	1/16W
R108	1-216-821-11	METAL CHIP	1K	5%	1/16W
R109	1-216-797-11	METAL CHIP	10	5%	1/16W
R110	1-216-797-11	METAL CHIP	10	5%	1/16W
R111	1-216-821-11	METAL CHIP	1K	5%	1/16W
R112	1-216-845-11	METAL CHIP	100K	5%	1/16W
R113	1-216-845-11	METAL CHIP	100K	5%	1/16W
R114	1-216-821-11	METAL CHIP	1K	5%	1/16W
R115	1-216-821-11	METAL CHIP	1K	5%	1/16W
R117	1-216-833-11	METAL CHIP	10K	5%	1/16W
R118	1-216-833-11	METAL CHIP	10K	5%	1/16W
R119	1-216-797-11	METAL CHIP	10	5%	1/16W
R120	1-216-797-11	METAL CHIP	10	5%	1/16W
R121	1-216-797-11	METAL CHIP	10	5%	1/16W
R122	1-216-797-11	METAL CHIP	10	5%	1/16W
R123	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R125	1-216-833-11	METAL CHIP	10K	5%	1/16W
R128	1-216-833-11	METAL CHIP	10K	5%	1/16W
R131	1-216-833-11	METAL CHIP	10K	5%	1/16W
R132	1-216-833-11	METAL CHIP	10K	5%	1/16W
R133	1-216-833-11	METAL CHIP	10K	5%	1/16W
R135	1-216-833-11	METAL CHIP	10K	5%	1/16W
R136	1-216-833-11	METAL CHIP	10K	5%	1/16W
R137	1-216-833-11	METAL CHIP	10K	5%	1/16W
R139	1-216-833-11	METAL CHIP	10K	5%	1/16W
R140	1-216-797-11	METAL CHIP	10	5%	1/16W
R141	1-216-801-11	METAL CHIP	22	5%	1/16W
R142	1-216-797-11	METAL CHIP	10	5%	1/16W
R143	1-216-797-11	METAL CHIP	10	5%	1/16W
R144	1-216-797-11	METAL CHIP	10	5%	1/16W
R145	1-216-809-11	METAL CHIP	100	5%	1/16W
R146	1-216-797-11	METAL CHIP	10	5%	1/16W
R147	1-216-797-11	METAL CHIP	10	5%	1/16W
R148	1-216-797-11	METAL CHIP	10	5%	1/16W
R149	1-216-809-11	METAL CHIP	100	5%	1/16W
R150	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R151	1-216-801-11	METAL CHIP	22	5%	1/16W
R153	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R154	1-216-075-00	METAL CHIP	12K	5%	1/10W
R155	1-216-833-11	METAL CHIP	10K	5%	1/16W
R156	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R158	1-216-833-11	METAL CHIP	10K	5%	1/16W
R159	1-216-833-11	METAL CHIP	10K	5%	1/16W
R160	1-216-809-11	METAL CHIP	100	5%	1/16W
R161	1-216-833-11	METAL CHIP	10K	5%	1/16W
R162	1-216-833-11	METAL CHIP	10K	5%	1/16W
R164	1-216-833-11	METAL CHIP	10K	5%	1/16W
R165	1-216-833-11	METAL CHIP	10K	5%	1/16W
R166	1-216-864-11	SHORT	0		
R167	1-216-864-11	SHORT	0		
R168	1-216-864-11	SHORT	0		
R169	1-216-864-11	SHORT	0		
R170	1-216-864-11	SHORT	0		
R171	1-216-833-11	METAL CHIP	10K	5%	1/16W
R172	1-216-821-11	METAL CHIP	1K	5%	1/16W
R174	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R175	1-216-864-11	SHORT	0		
R176	1-216-809-11	METAL CHIP	100	5%	1/16W
R177	1-216-809-11	METAL CHIP	100	5%	1/16W
R178	1-216-809-11	METAL CHIP	100	5%	1/16W
R179	1-216-809-11	METAL CHIP	100	5%	1/16W
R180	1-216-809-11	METAL CHIP	100	5%	1/16W
R181	1-216-805-11	METAL CHIP	47	5%	1/16W
R182	1-216-805-11	METAL CHIP	47	5%	1/16W
R183	1-216-805-11	METAL CHIP	47	5%	1/16W
R184	1-216-809-11	METAL CHIP	100	5%	1/16W
R185	1-216-809-11	METAL CHIP	100	5%	1/16W
R186	1-216-805-11	METAL CHIP	47	5%	1/16W
R187	1-216-805-11	METAL CHIP	47	5%	1/16W
R201	1-216-813-11	METAL CHIP	220	5%	1/16W
R202	1-216-813-11	METAL CHIP	220	5%	1/16W
R203	1-216-821-11	METAL CHIP	1K	5%	1/16W
R204	1-216-821-11	METAL CHIP	1K	5%	1/16W
R205	1-216-821-11	METAL CHIP	1K	5%	1/16W
R206	1-216-801-11	METAL CHIP	22	5%	1/16W
R207	1-216-809-11	METAL CHIP	100	5%	1/16W
R209	1-216-837-11	METAL CHIP	22K	5%	1/16W
R210	1-216-815-11	METAL CHIP	330	5%	1/16W
R211	1-216-809-11	METAL CHIP	100	5%	1/16W
R212	1-216-809-11	METAL CHIP	100	5%	1/16W
R213	1-216-833-11	METAL CHIP	10K	5%	1/16W
R214	1-216-833-11	METAL CHIP	10K	5%	1/16W
R216	1-216-821-11	METAL CHIP	1K	5%	1/16W
R217	1-216-821-11	METAL CHIP	1K	5%	1/16W
R218	1-216-846-11	METAL CHIP	120K	5%	1/16W
R219	1-216-846-11	METAL CHIP	120K	5%	1/16W
R220	1-216-847-11	METAL CHIP	150K	5%	1/16W
R221	1-216-847-11	METAL CHIP	150K	5%	1/16W
R222	1-216-842-11	METAL CHIP	56K	5%	1/16W
R223	1-216-842-11	METAL CHIP	56K	5%	1/16W
R224	1-216-850-11	METAL CHIP	270K	5%	1/16W
R225	1-216-833-11	METAL CHIP	10K	5%	1/16W
R226	1-216-853-11	METAL CHIP	470K	5%	1/16W
R227	1-216-846-11	METAL CHIP	120K	5%	1/16W
R229	1-216-833-11	METAL CHIP	10K	5%	1/16W
R230	1-216-839-11	METAL CHIP	33K	5%	1/16W
R231	1-216-855-11	METAL CHIP	680K	5%	1/16W
R232	1-216-839-11	METAL CHIP	33K	5%	1/16W
R233	1-216-853-11	METAL CHIP	470K	5%	1/16W
R234	1-216-803-11	METAL CHIP	33	5%	1/16W
R235	1-216-809-11	METAL CHIP	100	5%	1/16W
R236	1-216-803-11	METAL CHIP	33	5%	1/16W

MB-101

Ref. No.	Part No.	Description			Remark
R238	1-216-839-11	METAL CHIP	33K	5%	1/16W
R239	1-216-839-11	METAL CHIP	33K	5%	1/16W
R240	1-216-839-11	METAL CHIP	33K	5%	1/16W
R241	1-216-839-11	METAL CHIP	33K	5%	1/16W
R242	1-216-849-11	METAL CHIP	220K	5%	1/16W
R243	1-216-853-11	METAL CHIP	470K	5%	1/16W
R244	1-216-821-11	METAL CHIP	1K	5%	1/16W
R245	1-216-841-11	METAL CHIP	47K	5%	1/16W
R246	1-216-809-11	METAL CHIP	100	5%	1/16W
R248	1-216-803-11	METAL CHIP	33	5%	1/16W
R249	1-216-803-11	METAL CHIP	33	5%	1/16W
R250	1-218-895-11	METAL CHIP	100K	0.5%	1/10W
R251	1-216-841-11	METAL CHIP	47K	5%	1/16W
R252	1-216-839-11	METAL CHIP	33K	5%	1/16W
R253	1-218-889-11	METAL CHIP	56K	0.5%	1/10W
R254	1-218-895-11	METAL CHIP	100K	0.5%	1/10W
R255	1-218-889-11	METAL CHIP	56K	0.5%	1/10W
R256	1-216-809-11	METAL CHIP	100	5%	1/16W
R258	1-216-864-11	SHORT	0		
R259	1-216-833-11	METAL CHIP	10K	5%	1/16W
R260	1-216-834-11	METAL CHIP	12K	5%	1/16W
R261	1-216-833-11	METAL CHIP	10K	5%	1/16W
R262	1-216-815-11	METAL CHIP	330	5%	1/16W
R263	1-216-861-11	METAL CHIP	2.2M	5%	1/16W
R264	1-216-845-11	METAL CHIP	100K	5%	1/16W
R265	1-216-838-11	METAL CHIP	27K	5%	1/16W
R267	1-216-864-11	SHORT	0		
R268	1-216-864-11	SHORT	0		
R269	1-216-833-11	METAL CHIP	10K	5%	1/16W
R271	1-216-864-11	SHORT	0		
R274	1-216-833-11	METAL CHIP	10K	5%	1/16W
R275	1-216-837-11	METAL CHIP	22K	5%	1/16W
R276	1-216-833-11	METAL CHIP	10K	5%	1/16W
R278	1-216-833-11	METAL CHIP	10K	5%	1/16W
R279	1-216-864-11	SHORT	0		
R302	1-216-295-91	SHORT	0		
R303	1-216-295-91	SHORT	0		
R306	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R307	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R308	1-216-864-11	SHORT	0		
R309	1-216-864-11	SHORT	0		
R310	1-216-817-11	METAL CHIP	470	5%	1/16W
R311	1-216-817-11	METAL CHIP	470	5%	1/16W
R312	1-216-817-11	METAL CHIP	470	5%	1/16W
R313	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R314	1-216-833-11	METAL CHIP	10K	5%	1/16W
R315	1-216-817-11	METAL CHIP	470	5%	1/16W
R316	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R317	1-218-855-11	METAL CHIP	2.2K	0.5%	1/10W
R318	1-216-833-11	METAL CHIP	10K	5%	1/16W
R319	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R320	1-216-809-11	METAL CHIP	100	5%	1/16W
R321	1-218-879-11	METAL CHIP	22K	0.5%	1/10W
R322	1-216-864-11	SHORT	0		
R323	1-216-864-11	SHORT	0		
R324	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R325	1-218-883-11	METAL CHIP	33K	0.5%	1/10W
R326	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R327	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R328	1-216-833-11	METAL CHIP	10K	5%	1/16W
R329	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R330	1-216-838-11	METAL CHIP	27K	5%	1/16W
R331	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R332	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R333	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R334	1-218-853-11	METAL CHIP	1.8K	0.5%	1/10W
R335	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R336	1-216-847-11	METAL CHIP	150K	5%	1/16W
R337	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R338	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R339	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R340	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R341	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R342	1-216-833-11	METAL CHIP	10K	5%	1/16W
R343	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R345	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R346	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R347	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R354	1-216-295-91	SHORT	0		
R355	1-216-295-91	SHORT	0		
R356	1-216-864-11	SHORT	0		
R419	1-216-864-11	SHORT	0		
R420	1-216-864-11	SHORT	0		
R421	1-216-864-11	SHORT	0		
R422	1-216-809-11	METAL CHIP	100	5%	1/16W
R424	1-216-864-11	SHORT	0		
R425	1-216-864-11	SHORT	0		
R426	1-216-864-11	SHORT	0		
R428	1-216-833-11	METAL CHIP	10K	5%	1/16W
R429	1-216-864-11	SHORT	0		
R430	1-216-864-11	SHORT	0		
R431	1-216-864-11	SHORT	0		
R433	1-216-864-11	SHORT	0		
R434	1-216-864-11	SHORT	0		
R435	1-216-864-11	SHORT	0		
R436	1-216-864-11	SHORT	0		
R437	1-216-864-11	SHORT	0		
R438	1-216-864-11	SHORT	0		
R439	1-216-864-11	SHORT	0		
R440	1-216-864-11	SHORT	0		
R441	1-216-864-11	SHORT	0		
R442	1-216-864-11	SHORT	0		
R443	1-216-864-11	SHORT	0		
R444	1-216-833-11	METAL CHIP	10K	5%	1/16W
R445	1-216-833-11	METAL CHIP	10K	5%	1/16W
R446	1-216-833-11	METAL CHIP	10K	5%	1/16W
R447	1-216-864-11	SHORT	0		
R448	1-216-833-11	METAL CHIP	10K	5%	1/16W
R449	1-216-833-11	METAL CHIP	10K	5%	1/16W
R450	1-216-833-11	METAL CHIP	10K	5%	1/16W
R451	1-216-833-11	METAL CHIP	10K	5%	1/16W
R452	1-216-833-11	METAL CHIP	10K	5%	1/16W
R453	1-216-833-11	METAL CHIP	10K	5%	1/16W
R454	1-216-833-11	METAL CHIP	10K	5%	1/16W
R455	1-216-833-11	METAL CHIP	10K	5%	1/16W
R504	1-216-864-11	SHORT	0		
R507	1-216-809-11	METAL CHIP	100	5%	1/16W
R508	1-216-295-91	SHORT	0		
R511	1-216-797-11	METAL CHIP	10	5%	1/16W
R512	1-216-295-91	SHORT	0		

Ref. No.	Part No.	Description			Remark
R513	1-216-833-11	METAL CHIP	10K	5%	1/16W
R514	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R515	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R516	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R517	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R518	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R519	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R520	1-216-833-11	METAL CHIP	10K	5%	1/16W
R522	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R523	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R524	1-216-809-11	METAL CHIP	100	5%	1/16W
R525	1-216-295-91	SHORT	0		
R528	1-216-833-11	METAL CHIP	10K	5%	1/16W
R529	1-216-833-11	METAL CHIP	10K	5%	1/16W
R534	1-216-864-11	SHORT	0		
R536	1-216-797-11	METAL CHIP	10	5%	1/16W
R537	1-216-864-11	SHORT	0		
R551	1-216-809-11	METAL CHIP	100	5%	1/16W
R555	1-216-864-11	SHORT	0		
R556	1-216-864-11	SHORT	0		
R557	1-216-864-11	SHORT	0		
R606	1-216-864-11	SHORT	0		
R609	1-216-864-11	SHORT	0		
R610	1-216-864-11	SHORT	0		
R615	1-216-809-11	METAL CHIP	100	5%	1/16W
R619	1-216-864-11	SHORT	0		
R620	1-216-833-11	METAL CHIP	10K	5%	1/16W
R622	1-216-833-11	METAL CHIP	10K	5%	1/16W
R623	1-216-864-11	SHORT	0		
R624	1-216-864-11	SHORT	0		
R630	1-216-864-11	SHORT	0		
R642	1-216-805-11	METAL CHIP	47	5%	1/16W
R644	1-216-864-11	SHORT	0		
R647	1-216-805-11	METAL CHIP	47	5%	1/16W
R648	1-216-864-11	SHORT	0		
R649	1-216-864-11	SHORT	0		
R651	1-216-864-11	SHORT	0		
R652	1-216-864-11	SHORT	0		
R660	1-216-864-11	SHORT	0		
R664	1-216-797-11	METAL CHIP	10	5%	1/16W
R665	1-216-833-11	METAL CHIP	10K	5%	1/16W
R666	1-216-833-11	METAL CHIP	10K	5%	1/16W
R667	1-216-833-11	METAL CHIP	10K	5%	1/16W
R668	1-216-833-11	METAL CHIP	10K	5%	1/16W
R670	1-216-864-11	SHORT	0		
R672	1-216-809-11	METAL CHIP	100	5%	1/16W
R673	1-216-809-11	METAL CHIP	100	5%	1/16W
R674	1-216-809-11	METAL CHIP	100	5%	1/16W
R801	1-216-864-11	SHORT	0		
R802	1-216-864-11	SHORT	0		
R803	1-216-864-11	SHORT	0		
R804	1-216-864-11	SHORT	0		
R805	1-216-864-11	SHORT	0		
R806	1-216-864-11	SHORT	0		
R807	1-216-864-11	SHORT	0		
R808	1-216-864-11	SHORT	0		
R809	1-216-864-11	SHORT	0		
R810	1-216-833-11	METAL CHIP	10K	5%	1/16W
R811	1-216-833-11	METAL CHIP	10K	5%	1/16W
R812	1-216-833-11	METAL CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description			Remark
R813	1-216-833-11	METAL CHIP	10K	5%	1/16W
R814	1-216-833-11	METAL CHIP	10K	5%	1/16W
R815	1-216-833-11	METAL CHIP	10K	5%	1/16W
R816	1-216-833-11	METAL CHIP	10K	5%	1/16W
R817	1-216-833-11	METAL CHIP	10K	5%	1/16W
R818	1-216-864-11	SHORT	0		
R820	1-216-864-11	SHORT	0		
R821	1-216-805-11	METAL CHIP	47	5%	1/16W
R822	1-216-864-11	SHORT	0		
R823	1-216-833-11	METAL CHIP	10K	5%	1/16W
R824	1-216-864-11	SHORT	0		
R826	1-216-801-11	METAL CHIP	22	5%	1/16W
R827	1-216-864-11	SHORT	0		
R828	1-216-809-11	METAL CHIP	100	5%	1/16W
R829	1-216-864-11	SHORT	0		
R830	1-216-864-11	SHORT	0		
R831	1-216-864-11	SHORT	0		
R832	1-216-864-11	SHORT	0		
R833	1-216-864-11	SHORT	0		
R834	1-216-864-11	SHORT	0		
R835	1-216-864-11	SHORT	0		
R836	1-216-864-11	SHORT	0		
R837	1-216-864-11	SHORT	0		
R838	1-216-864-11	SHORT	0		
R839	1-216-864-11	SHORT	0		
R840	1-216-864-11	SHORT	0		
R841	1-216-864-11	SHORT	0		
R842	1-216-864-11	SHORT	0		
R843	1-216-864-11	SHORT	0		
R844	1-216-833-11	METAL CHIP	10K	5%	1/16W
R845	1-216-833-11	METAL CHIP	10K	5%	1/16W
R846	1-216-864-11	SHORT	0		
R847	1-216-864-11	SHORT	0		
R849	1-216-864-11	SHORT	0		
R850	1-216-864-11	SHORT	0		
R851	1-216-864-11	SHORT	0		
R852	1-216-864-11	SHORT	0		
R853	1-216-864-11	SHORT	0		
R854	1-216-864-11	SHORT	0		
R855	1-216-864-11	SHORT	0		
R856	1-216-864-11	SHORT	0		
R857	1-216-864-11	SHORT	0		
R858	1-216-864-11	SHORT	0		
R860	1-216-864-11	SHORT	0		
R861	1-216-833-11	METAL CHIP	10K	5%	1/16W
R862	1-216-801-11	METAL CHIP	22	5%	1/16W
R863	1-216-801-11	METAL CHIP	22	5%	1/16W
R864	1-216-809-11	METAL CHIP	100	5%	1/16W
R865	1-216-805-11	METAL CHIP	47	5%	1/16W
R866	1-216-864-11	SHORT	0		
R867	1-216-864-11	SHORT	0		
R868	1-216-864-11	SHORT	0		
R869	1-216-864-11	SHORT	0		
R870	1-216-864-11	SHORT	0		
R871	1-216-864-11	SHORT	0		
R873	1-216-864-11	SHORT	0		
R874	1-216-864-11	SHORT	0		
R875	1-216-864-11	SHORT	0		
R876	1-216-864-11	SHORT	0		
R877	1-216-809-11	METAL CHIP	100	5%	1/16W

Ref. No.	Part No.	Description	Remark
R878	1-216-864-11	SHORT 0	
R880	1-216-864-11	SHORT 0	
R882	1-216-864-11	SHORT 0	
R883	1-216-864-11	SHORT 0	
		< COMPOSITION CIRCUIT BLOCK >	
* RB102	1-233-270-11	NETWORK, RES (8 GANG) 10K	
RB103	1-233-576-11	RES, CHIP NETWORK 100	
RB104	1-233-576-11	RES, CHIP NETWORK 100	
RB105	1-233-576-11	RES, CHIP NETWORK 100	
RB106	1-233-576-11	RES, CHIP NETWORK 100	
RB107	1-233-576-11	RES, CHIP NETWORK 100	
RB108	1-233-576-11	RES, CHIP NETWORK 100	
RB109	1-233-576-11	RES, CHIP NETWORK 100	
RB110	1-233-576-11	RES, CHIP NETWORK 100	
RB111	1-233-576-11	RES, CHIP NETWORK 100	
		< VARIABLE RESISTOR >	
RV501	1-223-583-11	RES, ADJ, CARBON 1K	
		< VIBRATOR >	
X101	1-795-174-11	VIBRATOR, CERAMIC (16.5MHz)	
X102	1-781-867-21	VIBRATOR, CRYSTAL (27MHz)	

Ref. No.	Part No.	Description	Remark
	1-468-591-11	POWER BLOCK (MPN4801) ***********************	
		(Ref.No.: 4,000 Series)	
		< CAPACITOR >	
C5	9-885-006-64	ELECT 220uF	200V
C101	9-885-006-67	ELECT 330uF	35V
C111	9-885-006-66	ELECT 33uF	35V
C301	9-885-006-65	ELECT 680uF	25V
C306	9-885-006-66	ELECT 33uF	35V
C307	9-885-006-66	ELECT 33uF	35V
C401	9-885-006-67	ELECT 330uF	35V
		< DIODE >	
D4	8-719-901-33	DIODE 1SS133	
D5	8-719-063-16	DIODE HZS9B2	
D6	8-719-901-33	DIODE 1SS133	
D7	8-719-901-33	DIODE 1SS133	
D11	8-719-054-32	DIODE ERA15-06	
D12	8-719-054-32	DIODE ERA15-06	
D13	8-719-054-32	DIODE ERA15-06	
D14	8-719-054-32	DIODE ERA15-06	
D21	8-719-901-33	DIODE 1SS133	
D22	8-719-901-33	DIODE 1SS133	
D101	8-719-210-51	DIODE 21DQ10	
D102	8-719-063-04	DIODE MTZJ6.8A	
D103	9-885-006-59	DIODE HZ-18CP	
D104	8-719-901-33	DIODE 1SS133	
D110	8-719-901-33	DIODE 1SS133	
D205	8-719-901-33	DIODE 1SS133	
D301	9-885-006-58	DIODE ERB83-006	
D302	9-885-006-58	DIODE ERB83-006	
D401	8-719-210-51	DIODE 21DQ10	
D402	8-719-063-04	DIODE MTZJ6.8A	
D404	8-719-901-33	DIODE 1SS133	
D410	8-719-901-33	DIODE 1SS133	
		< FUSE >	
⚠F1	1-576-418-11	FUSE (2.5A/AC125V)	
		< IC >	
IC302	8-759-234-89	IC TA76431S	
IC303	8-759-651-05	IC TA76431AS	
		< IC LINK >	
⚠P301	1-533-593-11	LINK, IC (2A/AC60V)	
⚠P302	1-533-593-11	LINK, IC (2A/AC60V)	
		< PHOTO COUPLER >	
⚠PC1	9-885-006-57	PHOTO COUPLER PC817	
		< TRANSISTOR >	
Q1	9-885-006-63	TRANSISTOR 2SK2638	
Q2	9-885-006-61	TRANSISTOR 2SC1741AS	
Q101	9-885-006-60	TRANSISTOR 2SB1642	
Q102	8-729-920-70	TRANSISTOR 2SC1740S	
Q103	8-729-920-70	TRANSISTOR 2SC1740S	
Q104	8-729-920-68	TRANSISTOR 2SA933S	
Q201	9-885-006-62	TRANSISTOR 2SJ525	
Q301	9-885-006-60	TRANSISTOR 2SB1642	
Q302	8-729-920-70	TRANSISTOR 2SC1740S	
Q303	8-729-920-70	TRANSISTOR 2SC1740S	
Q304	8-729-920-68	TRANSISTOR 2SA933S	
Q401	8-729-018-60	TRANSISTOR 2SD2012	
Q402	8-729-920-68	TRANSISTOR 2SA933S	
Q403	8-729-920-68	TRANSISTOR 2SA933S	
Q404	8-729-920-70	TRANSISTOR 2SC1740S	
		< RESISTOR >	
R2	1-247-887-91	CARBON 220K 5%	1/4W
R3	1-247-887-91	CARBON 220K 5%	1/4W
R5	1-247-862-91	CARBON 20K 5%	1/4W
R6	1-247-827-91	CARBON 680 5%	1/4W
R7	1-247-815-91	CARBON 220 5%	1/4W
R8	1-247-867-91	CARBON 33K 5%	1/4W
R9	1-247-851-91	CARBON 6.8K 5%	1/4W
R10	1-247-850-91	CARBON 6.2K 5%	1/4W
R11	1-247-853-91	CARBON 8.2K 5%	1/4W
R12	1-247-861-91	CARBON 18K 5%	1/4W
R13	1-247-842-91	CARBON 3K 5%	1/4W
R17	1-247-827-91	CARBON 680 5%	1/4W
R19	1-247-783-91	CARBON 10 5%	1/4W
R22	1-247-823-91	CARBON 470 5%	1/4W
R101	1-247-841-91	CARBON 2.7K 5%	1/4W
R102	1-247-831-91	CARBON 1K 5%	1/4W
R103	1-247-801-91	CARBON 56 5%	1/4W
R104	1-247-838-91	CARBON 2K 5%	1/4W
R105	1-247-847-91	CARBON 4.7K 5%	1/4W
R106	1-247-838-91	CARBON 2K 5%	1/4W

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remark
R107	1-247-847-91	CARBON	4.7K	5%	1/4W
R108	1-247-833-91	CARBON	1.2K	5%	1/4W
R111	1-247-831-91	CARBON	1K	5%	1/4W
R112	1-247-847-91	CARBON	4.7K	5%	1/4W
R113	1-247-847-91	CARBON	4.7K	5%	1/4W
R203	1-247-851-91	CARBON	6.8K	5%	1/4W
R301	1-247-811-91	CARBON	150	5%	1/4W
R302	1-247-859-91	CARBON	15K	5%	1/4W
R303	1-247-839-91	CARBON	2.2K	5%	1/4W
R304	1-247-841-91	CARBON	2.7K	5%	1/4W
R305	1-247-831-91	CARBON	1K	5%	1/4W
R306	1-247-811-91	CARBON	150	5%	1/4W
R309	1-247-835-91	CARBON	1.5K	5%	1/4W
R310	1-247-823-91	CARBON	470	5%	1/4W
R311	1-247-830-91	CARBON	910	5%	1/4W
R312	1-247-840-91	CARBON	2.4K	5%	1/4W
R313	1-247-803-91	CARBON	68	5%	1/4W
R314	1-247-809-91	CARBON	120	5%	1/4W
R315	1-247-833-91	CARBON	1.2K	5%	1/4W
R316	1-247-797-91	CARBON	39	5%	1/4W
R317	1-247-842-91	CARBON	3K	5%	1/4W
R318	1-247-833-91	CARBON	1.2K	5%	1/4W
R319	1-247-867-91	CARBON	33K	5%	1/4W
R322	1-247-797-91	CARBON	39	5%	1/4W
R402	1-247-831-91	CARBON	1K	5%	1/4W
R403	1-247-807-91	CARBON	100	5%	1/4W
R404	1-247-838-91	CARBON	2K	5%	1/4W
R405	1-247-847-91	CARBON	4.7K	5%	1/4W
R406	1-247-839-91	CARBON	2.2K	5%	1/4W
R407	1-247-847-91	CARBON	4.7K	5%	1/4W
R408	1-247-849-91	CARBON	5.6K	5%	1/4W
R411	1-247-831-91	CARBON	1K	5%	1/4W
R412	1-247-850-91	CARBON	6.2K	5%	1/4W
R413	1-247-850-91	CARBON	6.2K	5%	1/4W
		< TRANSFORMER >			
⚠T1	9-885-006-68	TRANSFORMER			
*	A-6065-727-A	SE-123 BOARD, COMPLETE **********************			
					(Ref.No. 1,000 Series)
		< CAPACITOR >			
C501	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
		< CONNECTOR >			
CN502	1-573-383-11	PIN, CONNECTOR (PC BOARD) 2P			
CN503	1-815-569-11	CONNECTOR, FFC/FPC 7P			
		< JUMPER RESISTOR >			
JR501	1-216-295-91	SHORT	0		
		< PHOTO INTERRUPTER >			
PH501	8-749-924-30	PHOTO REFLECTOR GP2S28			
PH502	8-749-924-18	PHOTO INTERRUPTER RPI-1391			

Ref. No.	Part No.	Description			Remark
		< TRANSISTOR >			
Q501	8-729-120-28	TRANSISTOR	2SC2412K-T-146-QR		
		< RESISTOR >			
R501	1-216-075-00	METAL CHIP	12K	5%	1/10W
R502	1-216-033-00	METAL CHIP	220	5%	1/10W
R503	1-216-049-11	RES-CHIP	1K	5%	1/10W
R504	1-216-027-00	METAL CHIP	120	5%	1/10W
R505	1-216-043-91	RES-CHIP	560	5%	1/10W
*	A-6065-726-A	SW-356 BOARD, COMPLETE **********************			
					(Ref.No. 3,000 Series)
		< CONNECTOR >			
CN651	1-506-486-11	PIN, CONNECTOR 7P			
		< DIODE >			
D654	8-719-076-64	DIODE LNG997CKB0S0 (MULTI CHANNEL)			
D655	8-719-081-68	DIODE SLI-343DCT32 (DVD)			
D656	8-719-081-68	DIODE SLI-343DCT32 (SACD)			
		< JUMPER RESISTOR >			
JR651	1-216-295-91	SHORT	0		
		< RESISTOR >			
R651	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R652	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R653	1-216-063-91	RES-CHIP	3.9K	5%	1/10W
R654	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R655	1-216-081-00	METAL CHIP	22K	5%	1/10W
R656	1-216-033-00	METAL CHIP	220	5%	1/10W
R657	1-216-033-00	METAL CHIP	220	5%	1/10W
R658	1-216-029-00	METAL CHIP	150	5%	1/10W
		< SWITCH >			
S651	1-771-349-21	SWITCH, KEYBOARD (TOP MENU)			
S652	1-771-349-21	SWITCH, KEYBOARD (MENU)			
S653	1-771-349-21	SWITCH, KEYBOARD (↩ RETURN)			
S654	1-771-349-21	SWITCH, KEYBOARD (ONE/ALL)			
S655	1-771-349-21	SWITCH, KEYBOARD (REPEAT)			
S656	1-771-349-21	SWITCH, KEYBOARD (SHUFFLE)			
S657	1-771-349-21	SWITCH, KEYBOARD (LOAD)			

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS **************	
⚠9	1-783-531-31	CORD, POWER	
10	1-823-278-11	CABLE, FLEXIBLE FLAT (FCM-015)	
11	1-823-279-11	CABLE, FLEXIBLE FLAT (FCM-016)	
18	1-823-273-11	CABLE, FLEXIBLE FLAT (FAM-009)	
19	1-823-274-11	CABLE, FLEXIBLE FLAT (FAM-010)	
56	1-823-275-11	CABLE, FLEXIBLE FLAT (FFR-012)	
59	1-823-277-11	CABLE, FLEXIBLE FLAT (FFL-002)	
63	1-786-131-11	SWITCH, TACTILE	
68	1-823-276-11	CABLE, FLEXIBLE FLAT (FFR-013)	
118	1-757-751-11	CABLE, FLEXIBLE FLAT (FCS-005)	
163	1-466-996-21	ENCODER, ROTARY (LOADING)	
173	1-823-280-11	CABLE, FLEXIBLE FLAT (FOM-001)	
174	1-823-281-11	CABLE, FLEXIBLE FLAT (FMM-040)	
⚠181	8-820-144-06	OPTICAL PICK-UP KHM-240AAA/J1RP	
183	1-961-112-11	HARNESS (LE-054)	
M851	A-4660-977-A	MOTOR ASSY, LOADING	
M951	1-541-632-12	MOTOR, DC (TURN TABLE)	

ACCESSORIES & PACKING MATERIALS *******************************		
1-476-890-11	COMMANDER, STANDARD (RMT-D133A)	
1-575-335-21	CORD, CONNECTION	(STEREO AV CABLE 1.5m)
3-070-514-11	MANUAL, INSTRUCTION (ENGLISH)	
3-070-514-21	MANUAL, INSTRUCTION (FRENCH)	(Canadian)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Sony Corporation
Home Video Campany

2001H0500-1
© 2001. 8
Published by Quality Assurance Dept.